MINISTRY OF NATURAL RESOURCES

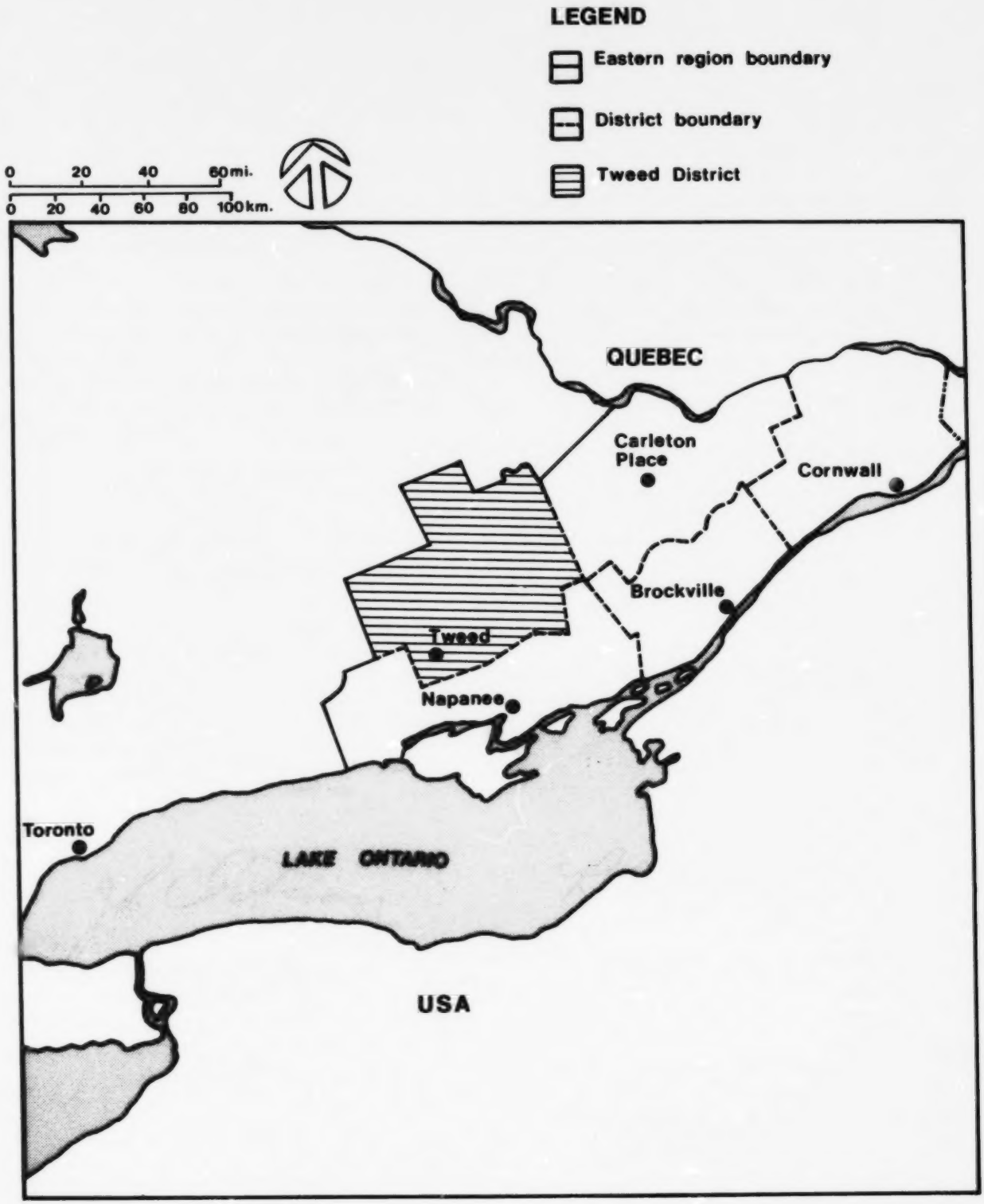
Tweed District

LAND USE GUIDELINES

Ontario
Ministry of Natural Resources
Hon. Alan W. Pope
Minister
W. T. Foster
Deputy Minister

1983

REGIONAL SETTING



FOREWORD

The Ministry of Natural Resources has a primary responsibility for the management of the province's natural resources, in particular those related to resource development and outdoor recreation.

This document will serve as a design for integrated resource development in the Tweed District. It is also intended to provide others with an understanding of the ministry's mandate and its programs which rely on both Crown and private lands for success.

To ensure an integrated approach the *Tweed District Land Use Guidelines* identify where and in what manner the ministry may use Crown land, and to what extent it may wish to suggest uses of private land, in working towards the achievement of ministry objectives.

For Crown land the ministry must consider the land and water requirements for both its own programs and those of other government agencies. This will require ongoing liaison with these other agencies. The ministry will continue to consult with private landowners and local municipalities since the latter have the responsibility for control of private land use.

The program targets and approaches outlined in this document follow the overall direction outlined in the ministry's *Southern Ontario Coordinated Program Strategy*. This document may serve as one of the sources of information for ministry involvement in the planning process of municipalities and other agencies. It is recognized, however, that this document has no legal status.

Planning is a continuous process and must be responsive to changing needs, information and technology. Thus the targets and strategies presented in this document are subject to revision based on such factors as changes in government policy, new or refined resource information, and significant changes to land use in other planning documents. To accommodate changes the *Land Use Guidelines* will normally be reviewed every ten years and and will involve full public consultation.

Comments may be to the District Manager at any time.

Regional Director
Eastern Region

District Manager
Tweed District

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I INTRODUCTION

It is the primary responsibility of the Ministry of Natural Resources to manage the public lands and waters which make up 45 percent of southern Ontario. The ministry also participates with other government agencies, private interests and municipalities in the planning and use of private lands and waters.

The goal of the ministry is to provide opportunities for resource development and outdoor recreation for the continuous economic and social benefit of the people of Ontario and to manage, protect and conserve public lands and waters.

Effort is directed towards this goal through three broad programs. The resource production program stimulates and regulates the utilization of fish, fur-bearers, minerals and trees by resource industries. The outdoor recreation program provides and encourages a wide variety of recreational opportunities, the identification and conservation of certain unique or representative features of the province and a continuous economic contribution from tourism industries. The land and water management program serves to facilitate orderly development, to administer, protect and conserve public lands and waters and to further the safe, co-ordinated use of all lands.

The Ministry of Natural Resources seeks to meet its goal and objectives through a co-ordinated, decentralized corporate planning and management system. One of the components, the land use planning system, provides the many diverse land and water related programs of the ministry with the framework for long-term integrated resource management by defining Crown land and water resources to achieve overall government objectives and by identifying private land contributions to achieve ministry objectives. This framework is expressed at two levels; in the strategic land use documents prepared for northwestern, northeastern and southern Ontario planning regions and in subsequent district land use guidelines.

The *Southern Ontario Co-ordinated Program Strategy* interprets the key elements of approved ministry policy statements in a co-ordinated fashion for the southern Ontario planning region. Each district is required to produce land use guidelines for the local administrative level.

In southern Ontario, the ministry is decentralized both geographically and administratively to four regions (Southwestern, Central, Eastern and Algonquin) and twenty-one districts, and functionally by management programs: mineral resources, forestry, fisheries, wildlife, provincial parks, lands and various specialized services.

The Tweed District is one of five administrative units in the Eastern Region responsible for the attainment of ministry program targets (frontispiece). The district covers an area of 653,430 hectares (2,523 square miles). There are twenty-two municipalities within the district, including portions of the counties of Hastings, Lennox and Addington and Frontenac. It is bounded to the north by Renfrew County, to the east by Lanark County, to the south by Napanee District and to the west by Peterborough County. The major urban centres in the district are Tweed, Madoc and Marmora.

The ministry directly manages the Crown lands and waters and agreement forest lands which together comprise about 45 percent of the Tweed District. In addition, the district works closely with six conservation authorities (Crowe Valley, Lower Trent Region, Mississippi Valley, Moira River, Napanee Region, Rideau Valley) to ensure that their programs contribute to the achievement of ministry objectives wherever possible. Nevertheless, the essential fact is that the district targets must be achieved largely on private land in organized municipalities. Major effort will be directed to encouraging a continuous contribution from private land to the achievement of ministry objectives. This will involve the provision of direct forms of encouragement to landowners and continued liaison and

co-operation with municipalities which have responsibilities for controlling land use on private land under the authority of the *Planning Act*.

This document, the *Tweed District Land Use Guidelines*, has been prepared in accordance with Ministry of Natural Resources provincial and regional guidelines for land use planning and in conformity with the direction provided by the *Southern Ontario Co-ordinated Program Strategy*.

The *Land Use Guidelines* states ministry policy for the administrative district including objectives, targets and strategies, and provides assistance for co-ordinating and integrating the land and water related programs of the ministry. It indicates what the ministry plans to achieve, and how much, when, where and how it wishes to accomplish this within the Tweed District. This document is best viewed as a working guideline which will be subject to considerable review and re-evaluation as the ministry proceeds with application.

Prediction of the future is uncertain at best and impractical for some resource uses. However, the use of targets provides a measurable indication of the degree of achievement of certain ministry program policies. It is not intended that all targets be achieved immediately but rather over the next 20 to 40 years. Periodic reviews will maintain the long-term perspective. Nevertheless, the achievement of the stated targets may be affected by a number of factors including the validity of the original assumptions, legislative approval of necessary funding and staffing levels, changing economic and social conditions, new or improved inventory and information which could result in a change to the original estimates and improved analysis techniques.

Program targets were initially allocated among the five districts in the Eastern Region from regional targets assigned in the *Southern Ontario Co-ordinated Program Strategy*. Each district then made an evaluation of whether or not the assigned targets were achievable. This involved examining factors such as current resource production, major constraints and the land area potentially available to each program. Some targets have been adjusted to reflect this review.

This document is designed primarily for use by ministry staff when managing the natural resources of the district, and when providing information and comments for the plans of municipalities, conservation authorities, other agencies and private landowners. Care must be taken that no one policy area is interpreted without regard for the others when applying the *Land Use Guidelines*.

In developing land use guidelines for Tweed District, a number of background papers were prepared. In addition, a tabloid was widely distributed in November 1980, to provide an introduction to the land use planning activities of the ministry. It presented brief highlights of the ministry's present natural resource programs in the Eastern Region and invited individuals and groups to become involved in the land use planning process for natural resource use now and in the future. The district also held two public open houses in Cloyne and Tweed. These gatherings provided a forum for discussions of issues in resource planning.

These actions contributed to the preparation of a draft *Tweed District Land Use Strategy* in June 1982. This document was circulated during the summer months and provided a focus for five public open houses in Madoc, Denbigh, Sharbot Lake, Flinton and Plevna. The document was revised based upon verbal and written comments received at the open houses, meetings with interested groups including municipalities and conservation authorities and the contents of written briefs and letters. Copies of all comments received are available for viewing in the Tweed District office, in the ministry's main office public reading room and in the Legislative Library at Queen's Park, Toronto.

This introductory section outlines briefly the scope of the Ministry of Natural Resources' mandate, provides the context for planning within the ministry, and describes the Tweed District and how land use planning has been applied to the area. The General Policies and Specific Policies sections of the report state the objectives and targets applying to the Tweed District and discuss the management challenges and opportunities that exist. These sections also describe broad strategies for achieving the objectives and targets. The next section, General Resource Areas, describes present use and development, any special features, and current land use problems and issues for specific locations in the district, and indicates which ministry programs will operate and the relevant strategies and important relationships that apply. The Application section describes, in general terms, how district staff will carry out the de-

veloped land use guidelines. An Appendix highlights the public consultation program followed during the district land use planning process. A Glossary also is provided.

The policies outlined in this section will be practised or supported by each program of the ministry in the district. These policies do not necessarily apply to any one program more than another and are not specific to any one land area.

A: integrated resource management

1. POLICY STATEMENT

Programs will be integrated to ensure the efficient use of land and water to achieve ministry objectives.

2. DISCUSSION

The area of land and water in the district suitable and available for achievement of ministry objectives is limited, and as a result, many activities must be carried out in the same area.

Approximately 54 percent of the total land and water base of Tweed District is in private ownership (map 1) The publicly owned portion is nearly all Crown land and water with the remainder in conservation authority, county and federal ownerships. Ministry program objectives cannot be achieved on the Crown land and water area alone. Co-operation with other public owners and, in particular, the encouragement of the use of private land is essential.

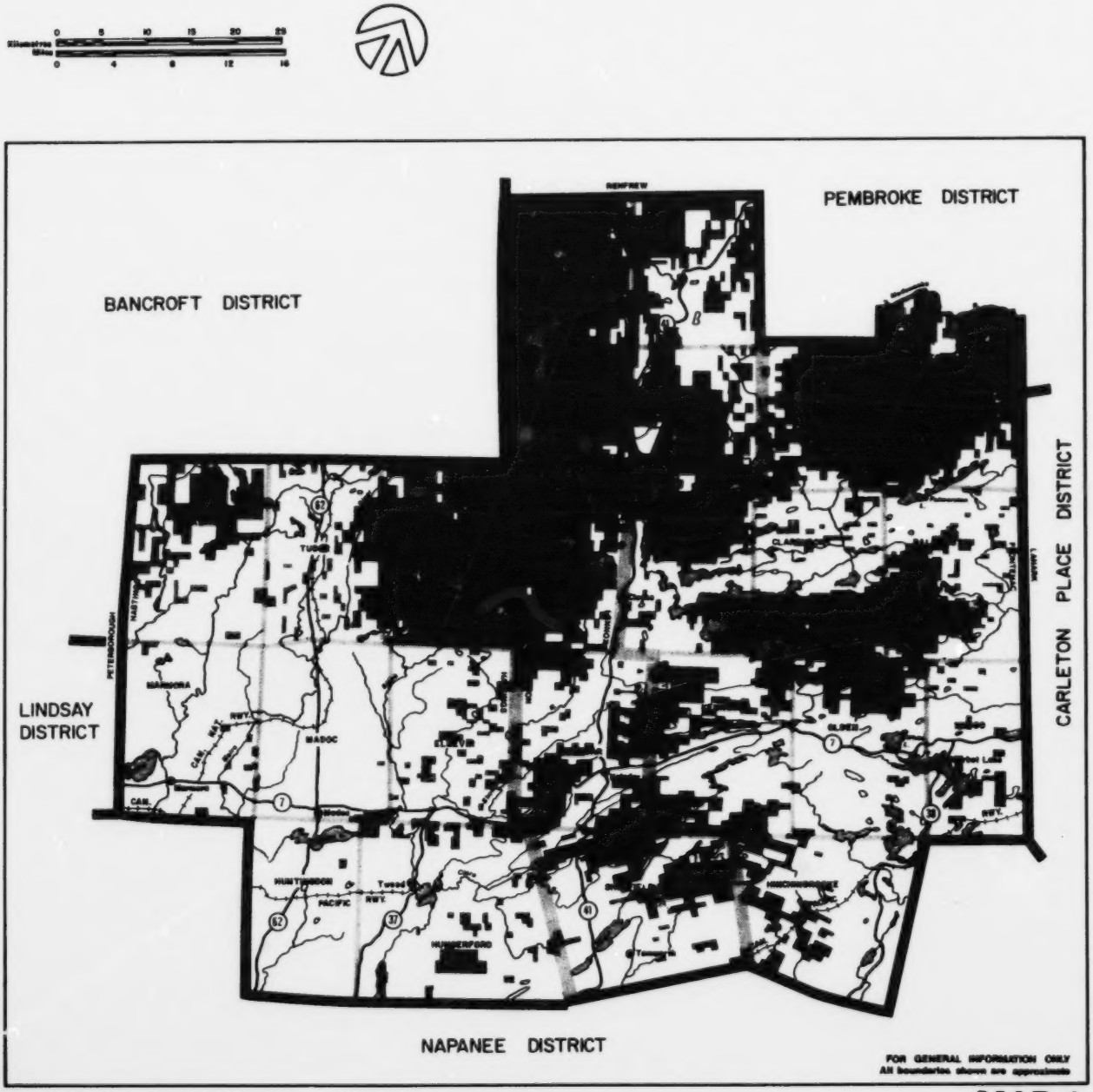
Public land and water management involves the stewardship of the basic resources of land and water. In the case of some 87 percent of the province, the land belongs to the Crown and is managed for the benefit of the people of Ontario. For the rest of the province which is in private ownership, the public's interest is more limited; it exists nevertheless and must be recognized. The integrated resource management policy within the Tweed District will have particular emphasis on public lands for all ministry programs. Where individual programs require the use of private land or may affect adjacent land, ministry resource management will coordinate activities with other land uses such as agriculture and residential development so that conflicts and inefficiencies are avoided or minimized. It is anticipated that considerable cross-program efficiencies may be achieved through greater integration of activities on lands now managed by the ministry.

TWEED DISTRICT

LEGEND

- Private land
- Public land

LAND OWNERSHIP



MAP 1

The ministry will provide or encourage areas of modified management along all shorelines, and in other areas as necessary in order to protect important fisheries, wildlife, recreation and tourism resources. The specific management prescriptions which will be followed or encouraged will be set out in appropriate resource management plans.

Many agencies at the federal, provincial, regional and local levels of government have an interest in the planning and management of land and water resources. Therefore, co-ordination is required among agencies as well as within the Ministry of Natural Resources. This is particularly evident in water management which can be generally described under the categories of water quality management, water quantity management, and water related land management.

Water quality management in Ontario falls principally under the jurisdiction of the Ministry of the Environment through its administrative responsibility for the *Ontario Water Resources Act* and the *Environmental Protection Act*. The Ministry of Natural Resources has a primary concern for water quality as it pertains to fish habitat management and water-oriented recreation.

The Ministry of Natural Resources is involved in water quantity management in several ways. The ministry has been assigned responsibility for provincial response to flood emergencies. The ministry also regulates the construction and operation of dams and other works under the *Lakes and Rivers Improvement Act*. In addition, several sections of the *Fisheries Act* (Canada) and boating regulations under the *Canada Shipping Act* (Canada), both administered by the Ministry of Natural Resources, apply to water quantity management.

Water conservation and flood control in Ontario have been delegated and decentralized to the watershed level where conservation authorities have been established. Therefore, conservation authorities play an active role in water quantity management in much of southern Ontario. In areas not under conservation authority jurisdiction in the northern portion of the district, the Ministry of Natural Resources must assume this responsibility. The *Tweed District Land Use Guidelines* will therefore contain references to water management and the activities of existing conservation authorities in order to foster an integrated and consistent approach for resource management across the entire district.

The Ministry of Natural Resources plays an important role in regulating floodplain development and managing water related land resources such as wildlife, parks and forests. Conservation authorities, under the *Conservation Authorities Act*, are given specific powers on water related land management. They have the right to acquire and manage lands to meet their objectives including recreational purposes. As an integral part of conservation authorities' flood and erosion control programs, effective land management is used and encouraged to reduce or eliminate negative impacts of land use decisions on water management.

It is anticipated that conservation authorities, through their watershed or basin studies and plan review function will continue to take an active role in storm water management, municipal drainage, soil conservation and review of proposed land use which may change the quality and the quantity of water resources.

The ministry acknowledges that the planning authority in organized municipalities rests primarily with the local council. The *Land Use Guidelines*, however, outline many of the ministry's preferences for land use and resource management on private land and provide a framework for decision making within the ministry.

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3. STRATEGY

- apply the concept of multiple use to land and water resource management, that is,
  - normally undertake two or more compatible activities on the same major area, concurrently or sequentially over time, and
  - recognize that, in some circumstances, management of areas for a single purpose such as extraction, protection or recreation is necessary;
- provide, through a district management committee, a continuing forum to promote integrated resource management and the application of the *Land Use Guidelines*;
- consider all resource benefits when developing management plans and, where feasible, prepare resource management plans which will achieve the objectives of two or more programs; the various resource management specialists in the district will consult with one another to develop proposals or plans;
- ensure that ministry construction projects involve all parties whose interests may be affected to identify and resolve conflicts prior to application;

- operate its dams in accordance with water management procedures established for each structure. Optimum water levels will be maintained to provide benefits for resource management (e.g. fish spawning areas), public safety (e.g. flood control), and recreation activities (e.g. boating);
- undertake a comprehensive analysis of all municipal official plans within the Tweed District to assess the status of resource-related policies, and to facilitate improvements as necessary;
- communicate effectively with municipalities, conservation authorities, and other agencies to ensure that the policies, programs and actions of these groups and those of the ministry are supportive and complementary; and
- permit interim use of candidate parks providing park values are protected. Uses and facilities which complement the achievement of park objectives will be encouraged; uses which have no significant negative impact on the long-term achievement of park objectives will be permitted with judicious controls; and uses which would conflict with the long-term achievement of park objectives will be prohibited.

B: public safety

1. POLICY STATEMENTS

The ministry will seek to eliminate loss of life and to minimize property damage and community disruption resulting from floods, erosion, earth slippage and forest fires.

The ministry will seek to eliminate injury and loss of life from hazards around abandoned pits, quarries, and mine shafts, and from abandoned oil and gas wells.

The ministry will promote the safe pursuit of outdoor recreation and resource production activities.

2. DISCUSSION

The Ministry of Natural Resources has been assigned the role of lead agency in co-ordinating provincial response to flood and forest fire emergencies. The ministry, in conjunction with the local conservation authorities, provides a flood forecasting and flood emergency response for the province. In southern Ontario, the response takes the form of a co-ordination effort for the actions of the other government agencies and local municipalities.

The regulatory flood for designation of floodplains is defined as the regional flood or the 100-year flood, whichever is greater over the watersheds within the area of jurisdiction of the Lower Trent Region Conservation Authority. In the remainder of the district the 100-year flood is the standard which applies. Conservation authorities in the Tweed District have adopted or are in the process of adopting, where possible, detailed programs, policies and operational criteria to apply more precisely the provincial standards to local conditions. For erosion susceptible sites, 100 years of protection is the provincial standard.

The entire Tweed District is within the fire region as designated under the *Forest Fires Prevention Act*.

Forest fire management is an integral part of land and resource management. Forest fire management is the strategy of fire control and fire use practised in concert with land use objectives and conducted in a manner that considers environmental, social and economic criteria.

The fire management program of the ministry performs a support function that provides expert knowledge and specialized services in matters of

fire control and fire use to groups within and outside the ministry. Those services relate to preventing the occurrence of wildfires, controlling those wildfires that threaten values, and using prescribed fire as an approved resource management technique.

The Ministry of Natural Resources has responsibility for forest fire management in Ontario. This responsibility is shared with municipalities and with land owners and resource users.

Delivery of fire protection services is best carried out by municipal agencies where they have that capability. The ministry can play a significant role in developing municipal expertise in minimizing risks from forest fires and in fire and emergency planning.

3. STRATEGY

- co-ordinate the provincial response to flood emergency and forest fire situations, recognizing the roles played by other government agencies and local municipalities;
- review and update annually district flood and fire contingency plans;
- continue to provide input to municipal planning and to review development proposals giving special consideration to those lands which are subject to flood, erosion, unstable soil conditions or high forest fire risks. This will be undertaken through comments on municipal official plans, plan amendments, zoning by-laws, consents and plans of subdivision in conjunction with the conservation authorities;
- undertake the identification of flooding hazard for areas within the district not presently under the jurisdiction of a conservation authority;
- work in conjunction with the local conservation authority to ensure that its dams are operated to alleviate flooding;
- administer the *Forest Fires Prevention Act* throughout the district. The *Act* guides ministry prevention and control activities on Crown land and, on private land, provides for agreements with municipalities having jurisdiction;
- encourage development and resource extraction activities in forested areas that are designed to reduce the possibility of fire spread;
- undertake prescribed burning in certain circumstances to assist forestry or wildlife management activities;
- suppress forest fires within the district upon consideration of human life, private and public property, wood production and wildlife habitat;
- inspect abandoned pits, quarries, and mine shafts and work with the Ministry of Labour to ensure that adequate safety measures are provided; and
- promote the hunter safety program by offering training for instructors and by providing competent examiners and facilities for examinations.

C: environment

1. POLICY STATEMENT

The ministry will conduct its activities in an environmentally responsible manner.

2. DISCUSSION

The Ministry of Natural Resources is one of several provincial agencies which have legislative responsibility to maintain an acceptable environmental quality. Planning, therefore, is required to co-ordinate specific resource management activities with the various other agencies.

Achievement of ministry targets is contingent upon a great many factors, not the least of which is the maintenance of a suitable environment. Of particular concern is the potential

effect of acid precipitation on waterbodies, soil and vegetation. The ministry will work closely with other government agencies to monitor the effect of contaminants such as acid rain on the achievement of its objectives.

All programs of the ministry share in the responsible management of natural resources. This includes identifying and conserving unique, representative or endangered physical, biological, cultural and historical features of the province. Biologically sound management is a basic requirement of forest, wildlife and fisheries management.

The management of non-renewable resources includes both protecting them from incompatible land use activities and discouraging use of high quality materials where lower quality materials would be suitable. Where environmental impacts are inevitable, mitigating and rehabilitation measures are used.

Some resource management activities carried out by the ministry are subject to the *Environmental Assessment Act*.

3. STRATEGY

- manage renewable resources on a biologically sound basis;
- manage non-renewable resources to meet current demand while giving attention to anticipated future needs. Additional strategies are discussed in the Mineral Aggregate section;
- identify and seek to protect the habitat of provincially rare and endangered animals and plants;
- in conjunction with conservation authorities, encourage the management and regulation of groundwater recharge and source areas, lands adjacent to watercourses and waterfront areas. This will be undertaken through the plan review process and through the administration of the *Lakes and Rivers Improvement Act*, the *Beach Protection Act* and the *Public Lands Act*;
- encourage consideration of all wetland values in municipal planning and the planning of other agencies. The ministry will be issuing a wetlands policy in the near future;
- participate in monitoring the effects of contaminants, including acid rain, on natural resources; and
- implement procedures to meet the requirements of the *Environmental Assessment Act*.

D: energy

1. POLICY STATEMENT

The ministry will undertake its activities so as to contribute to provincial energy objectives.

2. DISCUSSION

The province is committed to a major effort to increase its capacity for energy self-sufficiency. The Ministry of Natural Resources is currently assisting in achieving provincial energy objectives by increasing energy efficiency and conservation, participating in resource inventory programs, and participating in energy recovery programs.

The Tweed District presently encourages the use of fuelwood and waste products from Crown forest operations and private land forestry activities.

3. STRATEGY

- continue to encourage the recovery of fuelwood and the use of other forest residues for energy production; and
- determine the energy production potential of ministry-operated dams.

A: forestry

1. OBJECTIVE

The objective for forestry in southern Ontario is to provide for an optimum contribution to the economy by forest-based industries consistent with sound environmental practices, and to provide for other uses of the forest.

2. TARGETS

The targets for forestry in Tweed District are:[1]

- to produce an annual continuous supply of 450,000 cubic metres (15 million cubic feet) of wood for industrial purposes by the year 2020 while maintaining the present diversity of forest products; and
- to make the maximum contribution from forest production to the achievement of the provincial energy target.

3. DISCUSSION

The Tweed District is the major wood producing area in the Eastern Region. Present harvest, which averages 180,000 cubic metres (6 million cubic feet) of wood a year, satisfies local demand. Over 80 percent of the most productive sites (class 1) are located on the 65 percent of the forest land that is in private ownership. However, only about one-half of the wood produced is presently harvested from private land.

The assigned wood production target represents 30 percent of the regional total. This target will be re-examined in 1983 when an updated Forest Resources Inventory will be available.

To meet the wood production target, approximately 300,000 hectares (750,000 acres) of productive forest land yielding an average annual production of 1.5 cubic metres per hectare (20 cubic feet per acre) are required. Since there are 108,000 hectares (270,000 acres) of Crown land available for wood production and 204,000 hectares (510,000 acres) of private forest land potentially available, the target is potentially achievable. However, the amount of wood that is presently utilized is 1.1 cubic metres per hectare (15 cubic feet per acre) from Crown land and 0.55 cubic metres per hectare (7.5 cubic feet per acre) from private land.

Achievement of the target will require that all productive forest land in the Tweed District not committed to other uses be available for harvest (map 2). A large market for low quality wood, and extensive forest renewal and improvement on both public and private land, also will be necessary.

From both an areal and a productivity point of view, it is evident that private forest land has an essential contribution to make to the forestry objective which is greater than is presently realized. For this to occur, it must become profitable for a landowner to manage a woodlot over the long term. It is expected that a comprehensive study of private land forestry currently underway will result in constructive proposals for an extensive private forest management program.

The task is complicated by the present condition of the forest, the large number of individual private landowners, the small size of holdings, the lack of incentives for private forest management and the present private forest cutting practices. Also, large areas of the district are characterized by isolated, inaccessible pockets of productive forest land. Presently, the cost of making these sites accessible is greater than the value of the wood found there. Consequently, it is uneconomical to harvest these sites.

The ministry manages 9,672 hectares (23,900 acres) of county and conservation authority

(1) All volumes of wood are expressed in net merchantable terms.

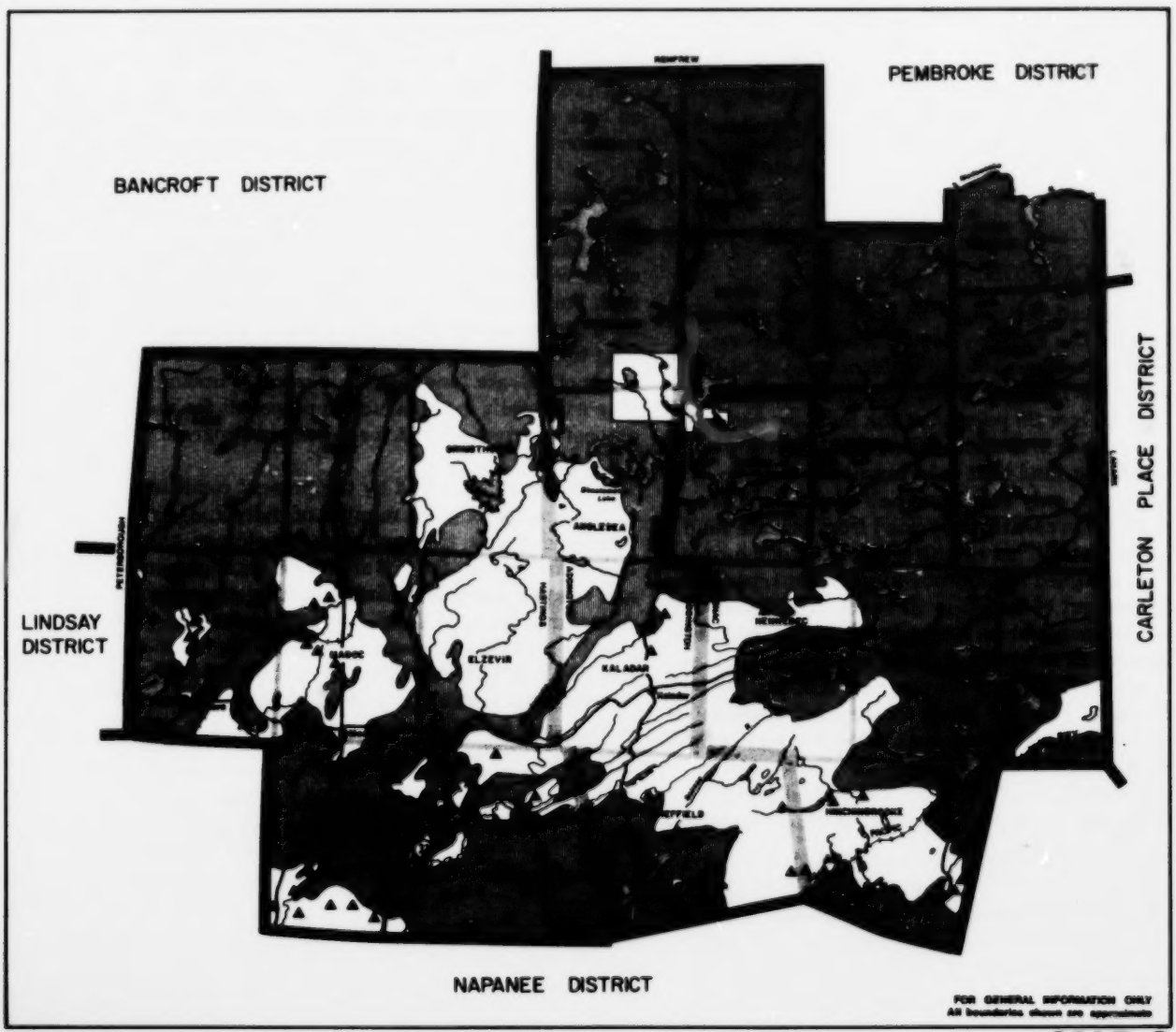
TWEED DISTRICT

LEGEND

Forest resource area

Woodlands Improvement Act agreement area

FORESTRY



MAP 2

agreement forest within the Tweed District. The core area of 1400 hectares (3,500 acres) of intensively managed plantations contributes 2 percent of the district target on only 0.5 percent of the productive forest land base. These forests play an important role in developing and demonstrating good forest management principles.

4. STRATEGY

- manage the forest on a sustained yield basis;
- meet 35 to 50 percent of the wood production target from Crown land. Long-term forestry program effort will be directed towards a more intensive forest management and greater utilization of what is presently considered unmerchantable wood fibre;
- intensify forest management on Crown land by:
  - preparing a Crown land forest management plan,
  - encouraging Crown land exchanges and acquisition to consolidate timber holdings,
  - establishing improved access to forest areas,
  - selectively controlling insects and diseases which threaten to reduce forest production, and
  - continuing to use prescribed burning as a forest management tool;
- increase forest utilization on Crown land by:
  - promoting the development and assisting the implementation of effective marketing of forest products, including fuelwood, low grade material and specialty products, and
  - promoting the utilization of small diameter low quality species for pulpwood or fuelwood;
- increase the effectiveness of the fuelwood program by:
  - providing access to those areas with large volumes of otherwise unmerchantable wood,
  - marking fuelwood areas to improve the quality of the residual forest,
  - recovering administrative and marking costs through a permit system, and
  - encouraging the commercial harvest of fuelwood from the larger forest operations;
- meet 50 to 65 percent of the wood production target from private land by:
  - producing a private land forest management plan which will evaluate forest resources on private land and determine the best management approaches to be encouraged through private land forestry,
  - advertising and promoting the *Woodlands Improvement Act* program and the private forest advisory service to reach all eligible landowners, and
  - informing municipalities about the benefits of a well-managed forest environment (e.g. jobs, revenue, recreation opportunities) and encouraging compatible land use policies in their official plans; and
- provide for other uses of the forest by:
  - including specific integrated resource management prescriptions in the Crown land forest management plan and related operating and annual plans for deer yards, significant fisheries and waterfowl habitat, significant program areas, and major recreational areas,
  - classifying all Crown land fronting lakes and streams as special forest management areas in order to minimize the impact of woods operations on fish habitat and outdoor recreation activities. The boundaries of these areas will be determined in keeping with the need for protection,
  - providing input and review opportunities for all ministry program interests prior to the implementation of any forest management, operating and annual plans, and
  - managing Crown land areas classified as protection forest mainly to prevent erosion of shallow soils or other deterioration of site conditions.

B: mineral aggregate

1. OBJECTIVE

The objective for mineral aggregate production in southern Ontario is to meet anticipated future demand with minimal disturbance to natural and cultural resources and the social environment.

2. TARGET

The target for mineral aggregate production in Tweed District is to ensure a total cumulative supply of 7.5 million tonnes (8 million tons) for the period 1982-2000.

3. DISCUSSION

The Hastings County portion of the district has been designated under the *Pits and Quarries Control Act* which regulates the licensing of extractive operations and their rehabilitation on private land. There are presently sixty-three licenced pits and/or quarries within the district. In addition, the district works with municipal agencies to protect aggregate resources from other forms of development that would restrict existing and future extractive operations, by means of official plans and zoning by-laws.

Accurate present production data for aggregate within the district is not available at this time due to the short period since designation under the *Pits and Quarries Control Act*. The potential of licenced properties is difficult to predict since boundaries usually reflect land ownership more than aggregate potential.

In 1981/82, the ministry undertook a study to identify the sand and gravel deposits within the County of Hastings and to determine the quantity and quality of the material for various uses. The surficial deposits identified are found scattered throughout the district, with the highest quality and greatest quantity material located in Madoc, Huntingdon and Hungerford Townships. Assessment work in the remainder of the district will be completed in 1983. A study of the bedrock resources within the district will be undertaken in 1983/84.

Any comparison of supply and demand figures for aggregate at this time within the district would show that there is an abundance of aggregate available. However, mineral aggregate is a non-renewable resource and demand will eventually surpass available supply within the area. Also, the ministry cannot guarantee continued use or level of production from any given area. Therefore, as much of the available resource potential as possible should be maintained for future needs.

The ministry is seeking to identify and maintain the potential of sufficient aggregate to meet the target (taking the difficulties of supply into consideration) and to keep future options open. This does not require designation of the total aggregate resource area specifically for extraction. Other designations can provide for ongoing uses while retaining the option to make use of the aggregate at some time in the future. It would be prudent, however, to generally discourage designations or development on or near-by aggregate reserves such that their future use would be impractical.

Potential sand and gravel areas in Hastings County are identified on map 3. The areas are defined as categories 1, 2 and 3 of the Eastern Region's sand and gravel aggregate classification system. These three categories warrant consideration for protection since together they encompass the quality of materials most in demand for road building and construction applications. Map 3 will be revised to include other potential aggregate areas (sand, gravel and crushed stone) when the current aggregate assessment is completed.

TWEED DISTRICT

MINERALS AND MINERAL AGGREGATE

LEGEND

Mineral resource area

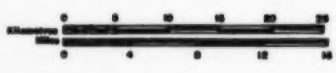
Pb, Zn, Cu	basemetals	mb	marble
Cu	copper	mi	mica
fl	fluorite	ni	nickel
Au	gold	py	pyrite
Pb	lead	tk	talc
mag	magnetite	U	uranium
		Zn	zinc

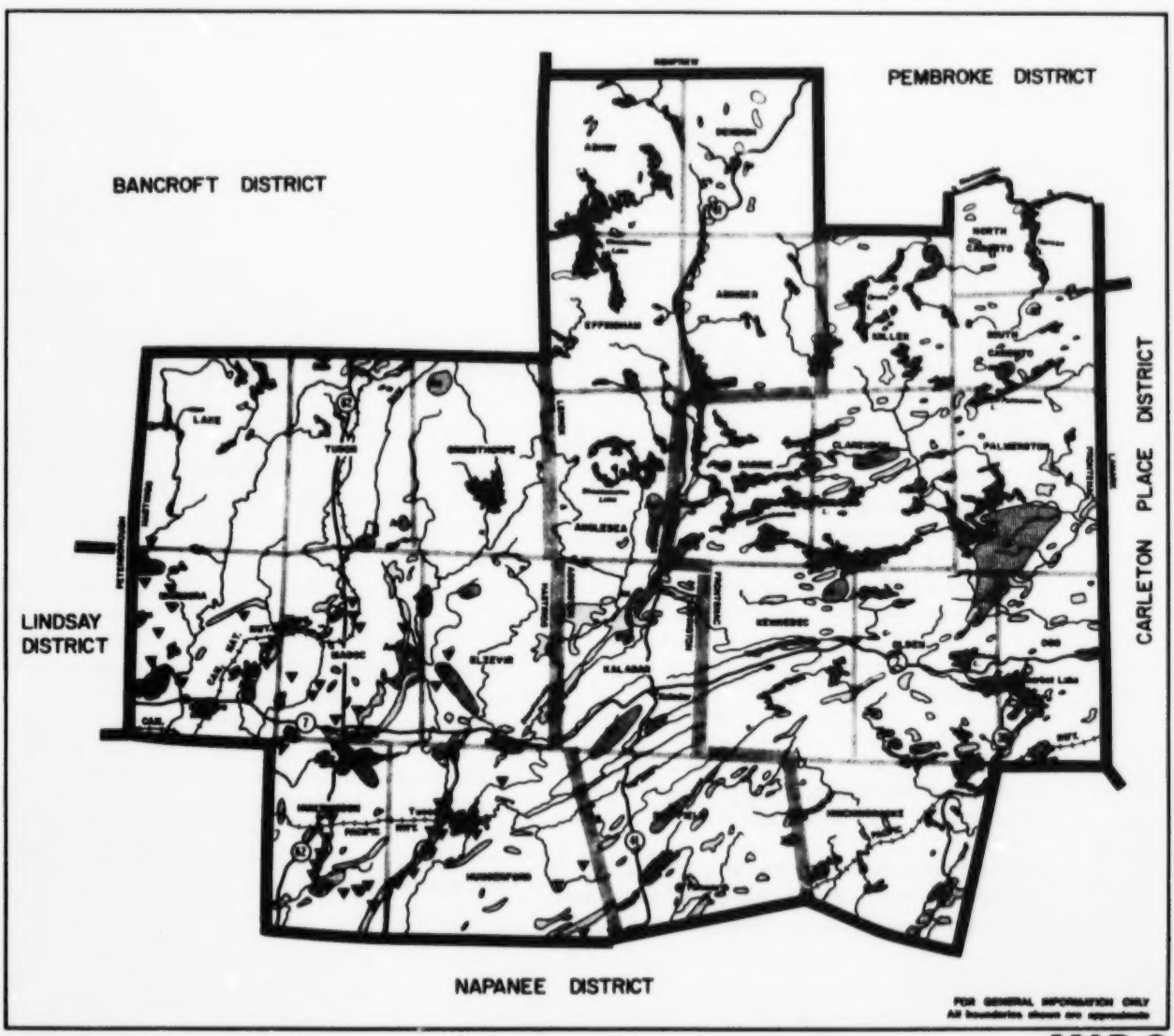
Mineral aggregate area
(Class 1, 2 and 3 sand and gravel)

Licensed pit or quarry

Note:
1. The aggregate boundaries indicate potential resources not definite extraction sites. Actual production areas to be protected will be determined by each municipality through its official plan policies and by-laws.

2. Aggregate boundaries in Lennox and Addington and Frontenac counties are preliminary.





MAP 3

The mapping, when completed, will identify areas within which maintenance of adequate resources should be focused. Each municipality will determine the *actual* aggregate production areas and resource potential to be maintianed through its official plan policies after due consideration of available reserves and competing land uses. The ministry will provide technical assistance to municipalities in this task.

Subject to certain contraints, such as height of the water table, a pit or quarry can be rehabilitated to almost any desired after use such as agriculture, recreation, forestry, housing, commercial or industrial uses.

4. STRATEGY

- seek to protect legally existing pits and quarries from on-site or adjacent incompatible uses;
- complete the mapping of the mineral aggregate resource and delineate potential aggregate areas;
- work with municipalities to ensure that adequate resources are protected and will encourage through the planning process, land uses such as agriculture and forestry which do not preclude the option of future aggregate extraction;
- encourage greater attention to the protection of natural aggregate (sand and gravel) due to its more limited extent and greater value than crushable stone;
- manage the aggregate resources on private lands in designated areas of the district through administration of the *Pits and Quarries Control Act*;
- encourage preparation of municipal official plans and by-laws which do not unduly exceed restrictions imposed on aggregate operations under the *Pits and Quarries Control Act*;
- encourage through the plan review process that municipal official plans and by-laws require good operating standards and rehabilitation of pits and quarries where provincial legislation does not apply; and
- operate and rehabilitate Crown land pits and quarries according to the standards of the *Pits and Quarries Control Act*.

C: minerals and fossil fuels

1. OBJECTIVE

The objective for minerals and fossil fuels in southern Ontario is to provide for a strengthening of the contribution of these resources to provincial economic development and energy production.

2. TARGET

The target for mineral resources in Tweed District is to keep open as much Crown land and unalienated mining rights as possible for mineral exploration and development.

There is no assigned target for fossil fuels in Tweed District. Specific mineral and fossil fuel production targets cannot be established because of difficulties in predicting market trends and assessing resource potential and because actual production is primarily a responsibility of the private sector.

3. DISCUSSION

Large markets in Ontario and beyond exist for most metallic and non-metallic minerals that might be mined in Tweed District. Such minerals include the ores of copper, lead, zinc, silver, gold, molybdenum and iron. The industrial minerals talc, barite, fluorite, mica, calcium carbonate, and tremolite are all present in the district and have all either been mined in the past or are presently being mined.

There are minor peat deposits within the district but no assessment has been made of their potential as fuel.

The mineral resource areas identified on map 3 represent areas with high mineral exploration potential and are the most probable locations for the discovery of economic mineral deposits.

4. STRATEGY

- evaluate mineral resource values before mining rights are permanently withdrawn and ensure that Crown land activity will not be permitted which permanently commits these areas to a non-mining use;
- encourage mineral exploration and development by:
  - providing information and consulting services to the public,
  - carrying out field mapping and research programs, and
  - providing encouragement to prospectors, investors and mineral exploration companies through programs such as the Ontario Mineral Exploration Program (OMEP);
- encourage municipalities to allow mineral explorations and extraction; and
- in conjunction with other government agencies, encourage industry to bring new deposits into production as soon as economic conditions permit and encourage further domestic processing of ore.

D: fisheries

1. OBJECTIVES

The objective for fisheries management in southern Ontario is to provide opportunities for recreation and economic benefits consistent with the maintenance of healthy fish communities.

More specific objectives are:
Sport Fishing
- to meet demand within the limits of a wisely managed and rehabilitated resource;

Commercial Fishing
- to maintain a viable industry;

Bait Fishing
- to maintain current production; and

Provincially Rare and Endangered Species
- to prevent the extinction of any native fish species.

2. TARGETS

The targets for fisheries in Tweed District are:
Sport Fishing
- to provide 1,875,000 recreation opportunities by the year 2000.

Commercial Fishing
- There is no assigned target for Tweed District.

Bait Fishing
- to provide 28,500 dozen fish annually from natural sources; and

Provincially Rare and Endangered Species
- to ensure no native fish species becomes extinct.

The targets for sport, commercial and bait fishing are based upon the best information presently available. There are inadequacies in estimates of present harvest and productivity. As this information is refined, the targets will be re-evaluated.

3. DISCUSSION

a. General

The fisheries targets are considered to be realistic and achievable through management effort.

The major concerns confronting fisheries management in Tweed District are acid precipita-

tion, availability of hatchery stock, over-exploitation, water level manipulation and loss of fish habitat.

Acid rain may reduce the productivity of many lakes within the district. Studies by the Ministry of the Environment and Ministry of Natural Resources reveal lakes in the County of Lennox and Addington in the Cloyne to Denbigh area are poorly buffered and sensitive to acid precipitation.

Fish stocking is crucial to meet the coldwater fish component of the sport fishing target. Every effort will be taken to obtain sufficient hatchery stock to manage the district's coldwater fish. Shortfalls in availability of hatchery stock may prevent sport fish target achievement.

Over-exploitation occurs when the annual harvest exceeds the production capabilities of a lake. This is a serious concern in lake trout waters within the district.

Water level manipulation on many lake trout lakes creates a severe fisheries management problem. Generally the water level is drawn down in the fall exposing lake trout spawn. This results in a high spawn mortality which can eventually lead to the extinction of the lake trout population of a lake.

Fish habitat within the district must be protected if the district is to satisfy the fisheries targets. Significant efforts to protect fish habitat are made through the plan review program, and various actions by conservation authorities, local municipalities and the Ministry of the Environment.

b. Sport Fishing

About 85 percent of the total water area of the district is suited to sport fisheries management (map 4). Some 24,720 hectares (61,800 acres) support cool and warmwater species with an estimated sustainable yield of 140,500 kilograms (310,000 pounds). Another 10,600 hectares (26,500 acres) support coldwater species with an estimated sustainable yield of 14,500 kilograms (32,000 pounds). Together, these figures amount to 155,000 kilograms (342,000 pounds) of fish annually and represent a realistic sport harvest level for the Tweed District.

The district does not have actual measurements of the present annual fish harvest. Preliminary information suggests that coldwater fisheries are being overharvested. Other information suggests that cool and warmwater fisheries harvest is slightly less than the sustainable yield, although certain lakes are being overharvested.

The district should be able to meet the sport fishing target provided that the existing quality of fish habitat is maintained and, in certain lakes, improved. In particular, coldwater fisheries resources have to be protected and, where necessary, rehabilitated.

c. Bait Fishing

The baitfish target is based on the present harvest. Since not all the potential baitfish production within the district is used, the target can be met and exceeded.

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4. STRATEGY

- manage fish communities rather than individual species;
- in consultation with the Ministry of the Environment, ensure that water quality is maintained at a level necessary to sustain present fish communities, through use of such guidelines as the *Report on Water Quality of the Lake Trout Waters of Southeastern Ontario, 1977* or updated reports;
- protect critical fish habitat including spawning beds and nursery areas. Shoreline dredging and filling normally will not be permitted unless it can be demonstrated that there will be no adverse impacts on fish habitat;
- attempt to ensure that fish harvest is not greater than the productivity of each waterbody through the preparation of fisheries management plans which will identify harvest limits, and by monitoring fish harvest;
- through public information and education, promote angling of under-utilized species (e.g. rock bass, perch);
- co-operate with water control management agencies to minimize the impact on fisheries of water level manipulation;
- recognize and manage natural self-sustaining fish stocks;
- maintain native lake trout populations in marginal and stressed lakes by all practicable means including supplementary stocking, setting appropriate regulations and influencing appropriate land use practices;
- provide optimum recreational opportunities from non-self-sustaining fisheries by stocking of hatchery raised fish where appropriate and in accordance with provincial guidelines;
- rehabilitate degraded fisheries habitat where appropriate;

TWEED DISTRICT

FISHERIES

LEGEND

Sport Fisheries

Coldwater species

- lake
- stream

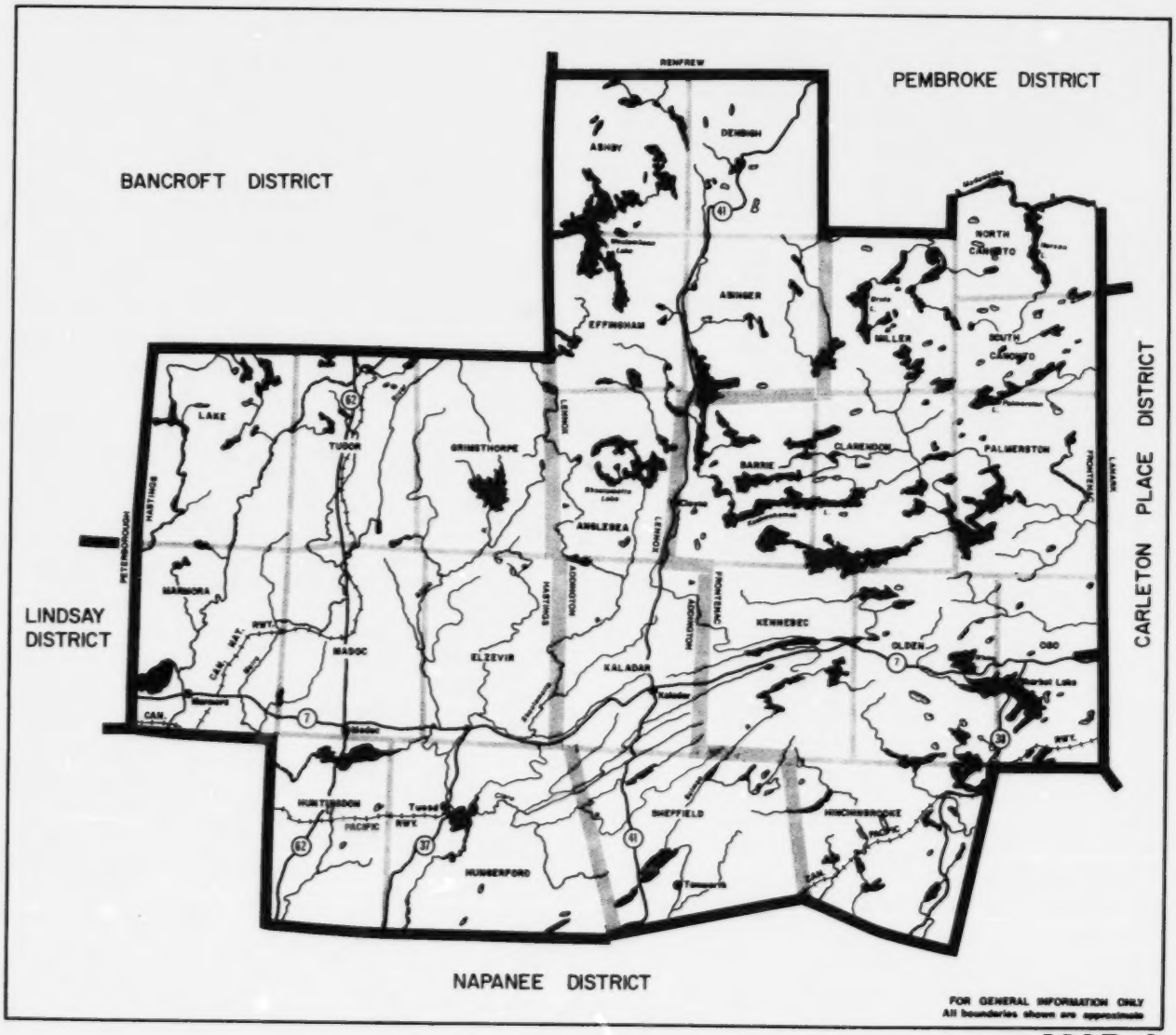
Special area (hatchery assessment unit)

Cool and warmwater species

- lake
- stream

Cold, cool and warmwater species

- lake



MAP 4

- maintain present access to fisheries resources for both management and recreational purposes;
- explore with private landowners appropriate means of opening privately accessible resources to the general public;
- restrict access in specific situations as required to maintain significant population gene pools or to create high quality "remote" fishing experiences;
- request municipalities, in areas where there are no conservation authority fill regulations, to enact by-laws to regulate filling and dredging activities on important private wetlands. Such action will help prevent the destruction of northern pike and maskinonge spawning habitat;
- request municipalities to require landowners to obtain authorization from the Ministry of Natural Resources before issuing a building permit for structures on the Crown bed of a lake. This will prevent inappropriate construction on significant fish habitat;
- attempt to protect water quality on White Lake in order to maintain the quality of the water source for the provincial fish hatchery;
- give preference to mechanical harvesting when reviewing Ministry of the Environment applications for weed removal because it has less impact on the fish community;
- allow baitfish to be harvested and sold to meet angler needs, subject to appropriate licences and in accordance with the *Ontario Fishery Regulations*;
- inspect baitfish dealers' facilities annually; and
- seek the protection of special fish habitat and rare or endangered species through appropriate designation, legislation or restrictions on access.

E: wildlife

1. OBJECTIVES

The objective for wildlife management in southern Ontario is to provide opportunities for social and economic benefits from wildlife recreation and fur harvest consistent with the maintenance of healthy wildlife populations.

More specific objectives are:

Hunting

- to provide opportunities sufficient to maintain the present rate of participation and quality of hunting by residents; and
- to maintain the contribution to the economy of hunting by non-residents;

Trapping

- to sustain the maximum yield from wild furbearer populations while maintaining the present diversity of fur types; and

Other Uses

- to prevent additional species from becoming endangered or threatened;
- to improve the status of existing endangered or threatened species with the objective of removing them from the endangered species list; and
- to maintain populations of all wildlife species (both non-game and game) at levels sufficient to:
  - provide opportunities for recreational enjoyment, aesthetic appreciation, scientific investigation, and educational uses,
  - provide benefits from tourism,
  - ensure environmental quality and ecosystem integrity, and
  - ensure the safety of the public.

2. TARGETS

The targets for wildlife in Tweed District are:

Hunting

- to provide by the year 2000, 175,000 opportunities for hunting recreation per annum, including 42,000 opportunities for big game hunting, 79,000 opportunities for small game hunting and 54,000 opportunities for waterfowl hunting;

Trapping

- to manage populations of wild fur-bearers such that an average harvest of 37,000 pelts can be achieved by the year 2000 while maintaining the present species diversity; and

Other Uses

- to ensure no native wildlife species becomes extinct.

The targets for hunting and trapping are based upon the best information presently available. As this information is refined, the targets will be re-evaluated.

A target for wildlife viewing has not been included due to the difficulty of measuring this activity and of assessing the influence of management actions. Viewing targets will be defined through ongoing policy development and will be incorporated into the *Land Use Guidelines* at an appropriate opportunity.

3. DISCUSSION

To a large extent the success of the wildlife program depends on the availability of good habitat (map 5). The protection of wildlife habitat can be achieved partially through the ministry plan input and review program, municipal planning and zoning, the flood and fill regulations of conservation authorities and certain provisions of the *Lakes and Rivers Improvement Act* and the *Public Lands Act*. Also, co-operation with internal ministry programs, especially forest management, is essential if wildlife habitat is to be protected.

a. Hunting

With a reasonable amount of management effort it is possible to achieve all assigned targets.

Changes to the deer hunting regulations have had a very positive effect on deer populations. The herd size should increase to a level which will support the target. However, the district is located on the northern fringe of the deer range and adverse weather conditions can be a significant factor in reducing the deer population. Management of the deer herd in Tweed District must deal with a lack of good winter cover, protecting good deer winter concentration areas located on private land and predator problems with dogs and poaching.

The district formerly had alternate year moose hunting seasons. However, due to the low population level the season has been closed since 1978. Presently, the moose population has increased significantly and supported a selective harvest in 1982 for bulls and calves only. With this modified type of harvest it should be feasible to continue the hunt in the future.

The bear population within the district is high Consequently, there is potential to increase the big game hunting opportunities being provided by the spring and fall bear hunts.

The small game hunting target (79,000 opportunities) represents a 2 percent increase over the existing level of opportunities and can be readily sustained by the small game populations within the district.

The district waterfowl hunting target (54,000 opportunities) is essentially equal to the present level of opportunities. The majority of waterfowl hunting occurs in small ponds which are scattered throughout the district. Since a large number of suitable ponds are not presently utilized during hunting season there is the potential to meet and exceed the target.

A major problem facing the achievement of district wildlife recreation targets is the increasing number of properties being posted "no trespassing".

b. Trapping

Although the fur target (37,000 pelts) represents a slight decrease compared to the 1979-80 fur harvest of 39,200 pelts, it is comparable with the five year average annual harvest. Based on limited population data and past harvest records, it is reasonable to expect that the target can be met without adversely affecting the fur-bearing animal population.

Large areas within the district are characterized by fertile wetlands which provide excellent habitat for a variety of fur-bearers. A very active fur production program is reflected in the second highest beaver harvest in Ontario and the highest district fur dollar value in the Eastern Region which contributes approximately 3/4 million dollars to the local economy annually.

c. Other Uses

The ministry is considering the potential for developing a high quality deer habitat area in Bon Echo Provincial Park. If a successful project can be developed a specific viewing opportunity for deer may be provided.

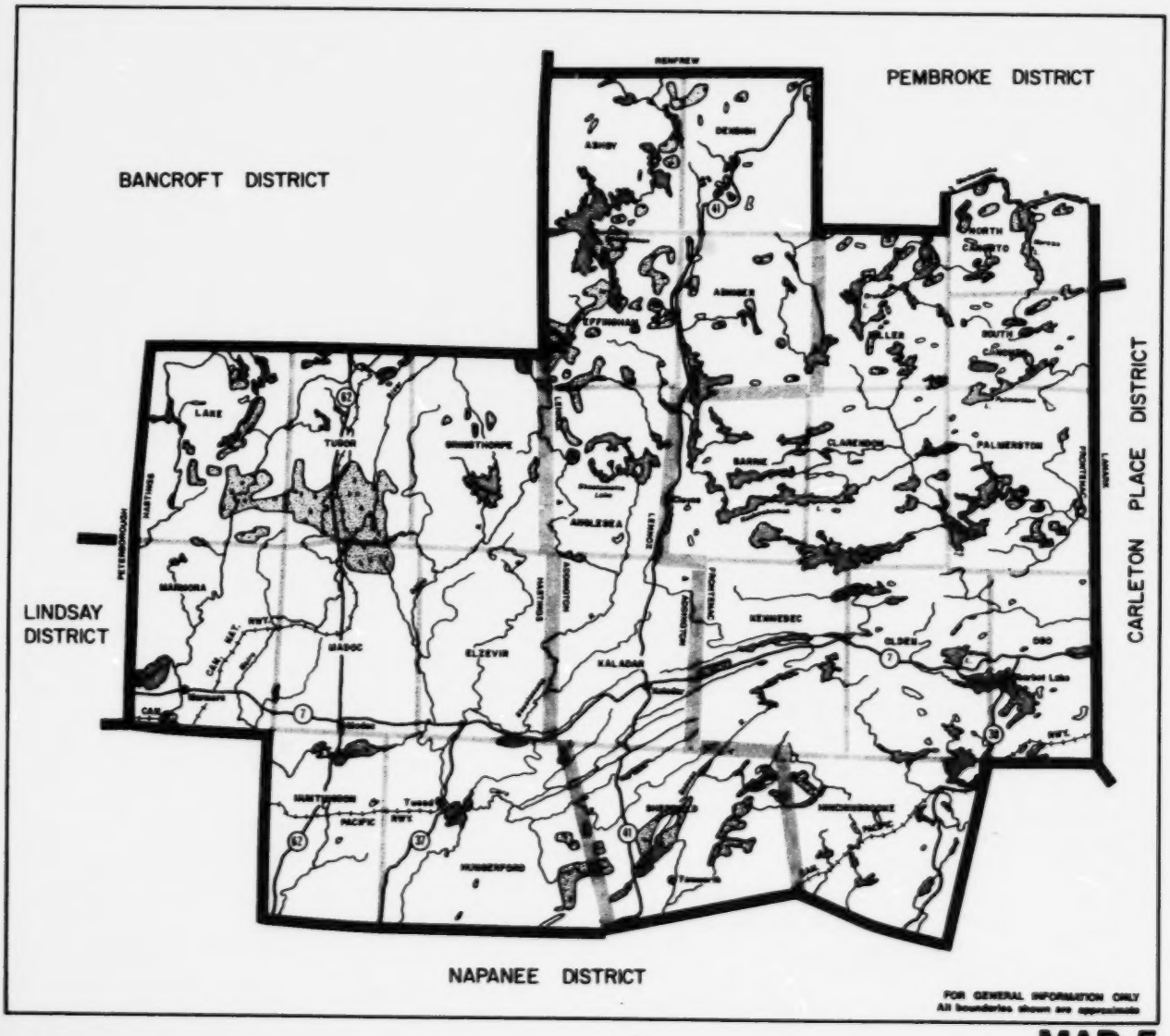
TWEED DISTRICT

LEGEND

Deer winter concentration area

Waterfowl habitat

WILDLIFE



MAP 5

4. STRATEGY

- protect, conserve and manage all wildlife species (both non-game and game) on public and private lands, and ensure the perpetuation of diverse high quality habitats;
- work co-operatively with government agencies at the federal, provincial and municipal levels, and with private landowners, developers and other members of the private sector to achieve the protection of all wildlife resources (both non-game and game) by:
  - providing through the plan review and land management programs comments on significant wildlife habitat including recommended actions to protect such habitat,
  - working with conservation authorities to protect significant wetlands from filling,
  - increasing wildlife management advice in the *Woodlands Improvement Act* program,
  - entering into agreements with property owners to ensure habitat on private land is protected;
- work with private groups and conservation authorities who can assist in the acquisition and development of wildlife habitat;
- acquire or exchange land for the management and perpetuation of wildlife;
- give management priority to deer before moose;
- identify and inventory all deer winter concentration areas critical to target achievement and have the data available to plan forest harvesting operations;
- manage resources within winter concentration areas to meet the needs of wintering deer, including supplementary feeding, browse cutting, trail packing and predator control. On Crown land, forestry activity will be a permitted secondary use subject to consultation with wildlife staff to incorporate modified management objectives and prescriptions in forest operating and annual plans;
- protect the presently small moose herd until the population can sustain the pressures of a regular hunt and identify key moose habitat;
- discourage filling and dredging and encourage restricted forest harvesting in areas which have been identified as significant waterfowl areas (map 5);
- seek to maintain, to the extent practicable, the existing density of beaver ponds and natural wetlands in the district as habitat for fur-bearers and waterfowl;
- provide opportunities for viewing wildlife in its natural surroundings such as at viewing areas developed in Bon Echo Park;
- identify and protect specific habitat of non-game wildlife species; and
- protect critical production areas and habitat of provincially rare or endangered species.

F: provincial parks

1. OBJECTIVES

The objectives for the provincial parks system in southern Ontario are:

Protection

- to protect provincially significant elements of the natural and cultural landscape of Ontario;

Heritage Appreciation

- to provide opportunities for exploration and appreciation of the outdoor natural and cultural heritage of Ontario;

Recreation

- to provide provincial park outdoor recreation opportunities ranging from high intensity day use to low intensity wilderness experiences; and

Tourism

- to provide Ontario's residents and out-of-province visitors with opportunities to discover and experience the distinctive regions of the province.

2. TARGETS

The targets for the provincial parks system in Tweed District are:

Protection

- Earth Science to protect provincially significant, representative and special earth science features in Tweed District which contribute to the representation of the thirty-five geological environments of southern Ontario;
- Life Science to protect provincially significant life science features in Tweed District which contribute to the representation of each vegetative site type in the twenty-six site Districts in southern Ontario;
- Historical Resources to protect provincially significant landscape-related prehistorical and historical resources which contribute to the representation of the fourteen themes of southern Ontario's history;

Heritage Appreciation

- to provide opportunities for exploration and appreciation of the outdoor natural and cultural heritage of Tweed District; and

Recreation and Tourism

- to provide annually, by the year 2000, the following recreation opportunities for residents and visitors to provincial parks in Tweed District:

  Day Use
  253,700 swimming opportunities
  102,200 picnicking opportunities
  Extended Use
  182,300 camping opportunities
  Back-country Use
  1,000 opportunities

3. DISCUSSION

The objectives and targets stated above are normally achieved through establishing provincial parks of the six different classes (wilderness, nature reserve, historical, natural environment, waterway and recreation) and through zoning and managing these parks according to the appropriate planning and management policies.

In the Tweed District there are two provincial parks (map 6). Bon Echo Provincial Park is a 6,644 hectare (16,417 acre) natural environment park located in parts of Barrie, Anglesea and Effingham Townships. Sharbot Lake Provincial Park is a 69 hectare (200 acre) recreation park located in Olden Township. A candidate nature reserve park, Stoco Fen, has been identified. The extent to which these parks achieve the district's provincial park targets is elaborated upon in the following pages.

a. Protection

For planning purposes the natural and cultural landscape of Ontario has been divided into three components — earth science, life science and historical resources. A framework has been developed for each component which classifies the land-based natural and cultural resources of the province into geological environments, vegetation site types and historical themes. The objective is to eventually identify and protect a representative example of each of these units.

These earth and life science features and historical resources fit within the broader framework of areas of natural and scientific interest.

Areas of natural and scientific interest are areas of land and water containing natural landscapes or features which have been identified as having values related to protection, natural heritage appreciation, scientific study or education. They may vary in level of significance. The most significant areas may contribute to the achievement of the ministry's protection objective. These are listed in figures 1, 2 and 3 and are shown on map 6.

Where areas of natural and scientific interest occur on public lands managed by the ministry, it will ensure that the land uses and activities which occur provide for the protection of identified values.

On private lands, the ministry will, through cooperation with others, attempt to ensure that landowners are aware of significant features on their properties and seek the owner's cooperation in protecting such features. The identification of areas of natural and scientific interest on private land does not indicate an intent of the ministry to acquire this land, or to restrain or prevent any private use of land.

Areas of natural and scientific interest encourage the protection of additional features not regulated as provincial parks and provide a focus for both the public and private sectors to contribute to the protection of Ontario's natural heritage. A number of sites have been identified but further inventory is required.

Tweed District contains features representing at least twelve earth science environments (figure 1). Bon Echo and Sharbot Lake Provincial Parks have several features representing the Precambrian Shield and a number of sites have been identified elsewhere on the Shield portion of the district. Many of these are located in roadcuts and their protection will require cooperation between the Ministry of Natural Resources and the Ministry of Transportation and Communications as well as county roads offi-

cials. Other sites located on private land may require negotiation with the landowner. These latter sites are rock outcrops and by their nature tend not to be fragile.

Two of the earth science sites on the Precambrian Shield are of special significance. The Ore Chimney Mine contains three type localities and good examples of volcanic and sedimentary features.

The Marble Lake site contains the best known examples of stromatolites (fossil algae) in Grenville rocks. These are the oldest known fossils in eastern Ontario.

Bon Echo has some potential for representing other earth science environments. Other sites have also been identified or are being studied elsewhere in the district. All of these will require further evaluation and consultation with landowners to verify their significance, define boundaries and determine appropriate protection strategies. In most instances the existing land use is compatible with the protection of the resource.

FIGURE 1 AREAS OF NATURAL AND SCIENTIFIC INTEREST — EARTH SCIENCE REPRESENTATION IN TWEED DISTRICT

Geological Environment	Representation in Existing parks	Other Sites
Precambrian		
Helikian Grenvillian Island Arcs, Sedimentary Basins and Continental Drift	Bon Echo[1] Sharbot Lake[1]	Marble Lake Stromatolites[3] Ore Chimney Mine Property[3] Long Lake blue calcite outcrop Madoc Formation calcareous phyllite type locality Madoc andesite Stewart Formation dolomitic marble type locality Madoc Formation carbonate metaconglomerate type locality Stewart Formation calcitic marble type locality Madoc Formation pelitic schist type locality Stewart Formation micaceous marble type locality Lessard Formation plutonic pebble metaconglomerate type locality Flinton ultramafic body Lessard Formation calc-silicate paragneiss type locality Lessard Formation epidote-free calc-silicate paragneiss type locality Bishop Corners Formation black pelitic schist type locality Lessard Formation calcareous quartzofeldspathic psammite type locality Lessard Formation biotite carbonate schist type locality Bishop Corners Formation stretched pebble conglomerate type locality Bishop Corners Formation grey pelitic schist type locality Richardson (Eldorado) Gold Mine Pringle Lake Camp Gesher pyroclastics Junction Highways 41 znd 506 pillowed lavas Bishop Corners Schoolhouse pillowed lavas Centennial Lake intraformational metaconglomerate
Paleozoic		
Middle Ordovician Marine Carbonate Platform	—	Marmoraton Mine Marmora west roadcut (Other districts provide additional representation)

FIGURE 1 continued

Geological Environment	Representation in Existing parks	Other Sites
Pleistocene		
(sequence of environments is not clearly defined for eastern Ontario)	Bon Echo(1) Sharbot Lake(2)	Thomasburg esker Marlbank esker Snow Road Station esker
Recent		
Includes existing landforms representative of processes which have occurred throughout geological time		
Tectonic Landforms	Bon Echo(1)	Evidence of past tectonism is widespread throughout the district
Mass Wasted Landforms	Bon Echo(1) Sharbot Lake(2)	Small rockslides, talus slopes etc. are common throughout the district
Glacial Landforms	Bon Echo(1)	Marlbank esker Thomasburg esker Snow Road Station Esker Other glacial landforms may be considered if better representation is not found in adjacent districts
Aeolian Landforms	—	Better opportunity for representation exists in other districts
Marine/Lacustrine Landforms	Bon Echo(1) Sharbot Lake(2)	Various small scale features can be found on lakes throughout the district
Fluvial Landforms	Bon Echo(1)	Both Recent and Pleistocene features occur throughout the district
Karst Landforms	—	Some opportunity but further study is required to compare sites with those in Napanee District

(1) Features in park but not proposed for nature reserve zoning
(2) Poor to fair representation only
(3) Site of special significance

Derived from ***Eastern Region Provincial Parks System Plan****, 1981.*

The life science framework divides Ontario into eight site regions, each of which is subdivided into a number of site districts, areas containing similar landform patterns. The Tweed District contains part of four site districts (5-11, 6-8, 6-9, 6-10) in two site regions. All of these site districts are shared with one or more Ministry of Natural Resources administrative districts. One, 6-8 (the Peterborough drumlin field) barely enters the Tweed District. Figure 2 shows the extent to which the two existing parks and other sites identified can contribute to representing vegetation site types of the other three site district.

Bon Echo Provincial Park, located within site district 5-11 (essentially that portion of the Tweed District north of Highway 7), has potential to represent a number of vegetation types on rock, loam and organic site types. Another three sites have been identified elsewhere in the site district.

Site district 6-9, shared with Napanee and Lindsay Districts, is the shallowly soiled limestone plain which extends south of the Precambrian Shield to the deeper soils of the Peterborough drumlin field and the clay soils of former Lake Iroquois. The site district has an abundance of rock, loam and organic site types. Tweed District has no provincial parks within the site district. Four sites are currently being considered for representing the site district. One of these, the Stoco Fen, is a highly significant wetland east of Stoco Lake and warrants protection. Ownership is shared by the Crown, by the Moira River Conservation Authority and by private individuals. The Crown owned core area is a candidate provincial park. Protection of the significant features in the surrounding area will require consultation with the landowners.

Site district 6-10 corresponds with the Frontenac Axis, that part of the Precambrian Shield which extends southward to the Thousand Islands separating the Lake Ontario and St. Lawrence lowlands. It is shared by four districts in the Eastern Region (Tweed, Carleton Place, Napanee and Brockville). There are four provincial parks within the site district which together provide good representation of rock, loam and organic site types. Sharbot Lake Pro-

vincial Park is the only one in the Tweed District and it is too small to contribute much to life science representation. Two other sites are being considered. One of these, located at Mellon Lake, is already afforded considerable protection as part of the Sheffield Conservation Area (Moira River Conservation Authority).

FIGURE 2 AREAS OF NATURAL AND SCIENTIFIC INTEREST — LIFE SCIENCE REPRESENTATION IN TWEED DISTRICT

Site District and Soil Material	Representation in Existing parks	Other Sites
Site District 5-11 (Site district is shared with Algonquin Region which has one existing and two proposed natural environment parks)		
Rock	Bon Echo	Kaladar Jack Pine Ridge Kennebec Lake North Shore (calcareous sites should be examined)
Sand	Bon Echo(1)	Some opportunity for additional representation
Loam	Bon Echo	Good opportunity for additional representation; more study required
Clay	—	Little opportunity in site district
Organic	Bon Echo(2)	Ompah Bog Existing representation could be augmented with more calcareous wetlands (fens, cedar swamps, etc.)
Site District 6-9 (Site district is shared with Lindsay and Napanee Districts)		
Rock	—	Bend Bay Valley Further study required
Sand	—	Site type is uncommon in the site district
Loam	—	Further study is required
Clay	—	Stoco Fen (marl)(1) Dry Lake/Lime Lake fens (marl)(1) Further study is required
Organic	—	Stoco Fen(3) Bend Bay Valley Dry Lake/Lime Lake fens
Site District 6-10 (Site district is shared with Napanee, Brockville and Carleton Place Districts)		
Rock	Sharbot Lake(2)	Kaladar Jack Pine Forest Mellon Lake(4) Good opportunity for additional sites
Sand	—	Some opportunity; further study required
Loam	Sharbot lake(2)	Some opportunity; further study required
Clay	—	Little or no opportunity
Organic	—	Good opportnities to represent bog, marsh and swamp communities; further study required

(1) Poor to fair representation only
(2) Features in park but not in existing or currently proposed nature reserve zone
(3) Candidate provincial park
(4) Moira River Conservation Authority, Sheffield Conservation Area

Derived from Eastern Region Provincial Parks files

The report entitled *A Topical Organization of Ontario History* and a subsequent status report prepared by the former Ministry of Culture and Receation organize Ontario's land based history into themes, sub-themes and segments. At least twelve themes are relevant to the Tweed District (figure 3).

FIGURE 3 AREAS OF NATURAL AND SCIENTIFIC INTEREST — HISTORICAL RESOURCES REPRESENTATION IN TWEED DISTRICT

Theme	Representation in Existing Parks	Other Sites
Environmental Frontiersmen	—	Few sites known; more study required
Indigenous Settlers, Traders and Potters	—	Few sites known; more study required
Northern Hunters and Fishers	Bon Echo (rock paintings)	Scattered sites along waterways; further study required
Post-Contact Tribes and Bands	—	Few sites along waterways
Alienation of the Land	Bon Echo	Land survey patterns throughout district
Early Settlement	Bon Echo (Addington Road, Tapping Farm)	O'Hara Mill[2] Colonization roads
Rural Life	Bon Echo	O'Hara Mill[2]
Forest Industry	Bon Echo[1]	O'Hara Mill[2] A number of sites relate to this activity but further work is required to evaluate them
Mining	Bon Echo[1]	Richardson (Eldorado) Gold Mine Marmora Iron Works Marmoraton Mine Ore Chimney Mine Numerous other old mine sites
Early Manufacturing	—	O'Hara Mill[2] Several mill sites; cheese factories etc.
Transportation and Integration of Economies and Communities	Bon Echo[1] Sharbot Lake[1]	Colonization roads plus other early roads CPR line Tweed to Glen Tay
Recreation and Conservation	Bon Echo Sharbot Lake[1]	There are numerous resources representing this theme throughout the district but no effort has been made to evaluate them

(1) Representation is of poor quality or peripheral to the theme (i.e. the main resources may not actually be inside the park)
(2) Moira River Conservation Authority

Derived from ***A Topical Organization of Ontario History*** *(1972) as revised 1978.*

Bon Echo Provincial Park contributes to the representation of several themes. It contains the largest concentration of Indian rock paintings (pictographs) found in Ontario. Some of the pictographs are located on Crown land just outside the existing park boundary. The draft park master plan recommends the extension of the park boundary north and south along the east shore of Mazinaw Lake to protect pictographs not already in the park.

While considerable information is available on the history of the Tweed District, much more research is needed to locate and evaluate the land-based resources which can best be protected within the provincial park system. It is expected that other agencies, including conservation authorities, will have a significant role in protecting many of the district's historical themes. At the present time, no new historical parks are proposed.

b. Heritage Appreciation

Establishing natural environment, wilderness and waterway provincial park classes or zones in site regions and site districts is the principal means of representing the natural and cultural landscapes of Ontario. Opportunities to explore and appreciate these landscapes can then be provided through a variety of self-use facilities and visitor services programs.

Of the four site districts located partially within the Tweed District only 6-9 remains unrepresented by a natural environment park. Lindsay and Napanee Districts share with Tweed District the responsibility for locating a suitable site for a natural environment park within site district 6-9. As yet, no suitable site has been identified.

A wilderness zone within a natural environment park in site district 5-11 would, together with existing and proposed wilderness in Algonquin Region, ensure adequate representation of site region 5E. Three wilderness zone alternatives were examined in the Tweed District, an area in Grimsthorpe Township, the Fortune-Schooner area in Miller Township, and an area within Bon Echo Provincial Park. Location of the zone within Bon Echo park was determined to be the most acceptable alternative. The feasibility of establishing a wilderness zone within the park or if necessary by extending the park boundary will be further examined during the preparation of the Bon Echo Provincial Park master plan.

Waterway park representation of the four site districts in the Tweed District is achieved elsewhere by the Canada-Ontario Rideau, Trent-Severn (CORTS) federal-provincial agreement, the Madawaska candidate waterway park in Algonquin Region and a candidate waterway park in Napanee and Brockville Districts. No waterway parks are proposed for the Tweed District.

Existing programs and facilities in Bon Echo and Sharbot Lake Provincial Parks interpret the natural and cultural heritage of the south Precambrian Shield area. Bon Echo has a visitor centre, amphitheatre, two self-guiding interpretive trails, an overnight hiking trail and a canoe route. A variety of programs are presented during the summer months which interpret the natural and cultural themes of the park. In Sharbot Lake Provincial Park the emphasis is on basic communications services and self-use facilities. A self-guiding interpretive trail is being improved and a display area features the geology and history of the Sharbot Lake area.

c. Recreation and Tourism

The targets for recreation and tourism are expressed in terms of opportunities to swim, picnic, camp and canoe trip in provincial parks. These activities have been chosen because of their popularity and because they require specific facilities. In setting the targets it was assumed that provincial parks in southern Ontario would continue to provide the same average annual per capita supply of opportunities as they did in 1976. The targets for Tweed District shown in figure 4 give the requirements for swimming, picnicking, camping and back-country travel opportunities by the year 2000. The figures are based upon the assumption that the average urban resident will travel for up to two hours to picnic or swim and up to three hours to camp overnight in a provincial park. The back-country travel target is a minimal amount which would theoretically require only 4.3 kilometres (2.7 miles) of canoe route. However, the definition for back-country travel requires that the traveller camp overnight on the route. This suggests a minimun of 15 to 20 kilometres (9 to 12 miles) of canoe route.

Existing facilities at Bon Echo and Sharbot Lake meet the camping target but fall short of the swimming, picnicking and back-country targets. Picnic facilities can be expanded somewhat at Bon Echo. The swimming target cannot be met. Most of the population for which the swimming and picnicking targets are assigned are near the maximum day use travel distance. Existing facilities for both picnicking and swimming appear more than adequate to meet present demand. For example, Bon Echo receives very little day use, therefore, facilities will not be expanded until demand warrants.

The back-country target as defined cannot be met within the existing parks. The Kishkebus canoe route at Bon Echo is only partly within the park and camping is not permitted on Kishkebus Lake. The Abes and Essens Trail provides overnight back-country hiking, but the target does not yet include this activity. Further consideration will be given to how this target can be achieved in Tweed District or alternatively modified or transferred to another district which can achieve it. Napanee District, for example, has a potential surplus of 3500 opportunities.

FIGURE 4 RECREATION AND TOURISM TARGETS, EXISTING SUPPLY AND ADDITIONAL REQUIREMENTS — TWEED DISTRICT

	Day Use				Extended Use			
	Swimming opportunities	Metres of beach	Picnicking opportunities	Picnic tables	Camping opportunities	Campsites	Back-country opportunities	Kilometres of canoe route
Target (year 2000)	253,700	—	102,000	—	182,300	—	1,000	—
Existing supply (1980)								
Bon Echo	88,735	490	36,220	100	135,044	530	0	0
Sharbot Lake	8,574	133	12,677	35	50,960	200	0	0
Total	97,309	623	48,898	135	186,004	730	0	0
New opportunities required for year 2000 (rounded figures)	156,400	670	53,300	150	0	0	1,000	10
Available potential								
Bon Echo	0	0	7,244	20	0	0	0	0
Sharbot Lake	0	0	0	0	0	0	0	0
Total	0	0	7,244	20	0	0	0	0
Target Variance (rounded figures)	-156,400	-670	-46,100	-130	+3,700	+15	-1,000	-10

Derived from ***Eastern Region Provincial Parks System Plan****, 1981.*

Co-operation, exchange of information and co-ordination with other agencies and local groups and individuals providing outdoor recreation services will be an ongoing function of the ministry.

Map 6 shows the location of existing provincial parks and a candidate park, and includes as areas of natural and scientific interest those earth science, life science and historical resources presently identified.

4. STRATEGY

a. Protection

- continue its search for sites which adequately represent earth science, life science and historical resources;
- consult with the Ministry of Citizenship and Culture on matters of historical and archaeological research and planning;
- continue to evaluate sites identified in the district for comparison with other sites across the province to ensure the most complete and highest quality of representation of the natural and cultural landscape;
- seek the protection of the earth and life science features at the Marble Lake site and the Ore Chimney Mine through negotiation with the present landowners;
- endeavour to conserve and protect other areas of natural and scientific interest through co-ordinated ministry programs and special arrangements with other agencies and private individuals; and
- place the Crown owned portion of Stoco Fen in regulation under the *Provincial Parks Act* as a nature reserve class provincial park and seek the protection of the remainder of the fen through negotiation with the present landowners.

b. Heritage Appreciation

- in co-operation with Napanee and Lindsay Districts attempt to identify a suitable site within site district 6-9 for a natural environment park;
- continue to examine the feasibility of creating a wilderness zone in Bon Echo Provincial Park during the preparation of the park master plan; and
- implement visitor services plans for Bon Echo and Sharbot Lake Provincial Parks in accordance with the *Regional Visitor Services Plan.*

c. Recreation and Tourism

- retain and continue to operate the two existing parks, Bon Echo and Sharbot Lake, within the provincial park system;
- increase the number of picnicking opportunities within the existing parks if warranted by demand;
- continue to conduct user surveys within the existing parks to monitor changes in visitor preferences and demand for specific facilities and services; and
- develop a stronger liaison with local tourism associations, tourist operators and the Ministry of Tourism and Recreation to determine how provincial parks can achieve ministry objectives as well as stimulate the local tourism economy.

TWEED DISTRICT

PROVINCIAL PARKS AND RECREATION

LEGEND

- Existing provincial park
- Candidate provincial park

Class

- nr nature reserve
- ne natural environment
- r recreation

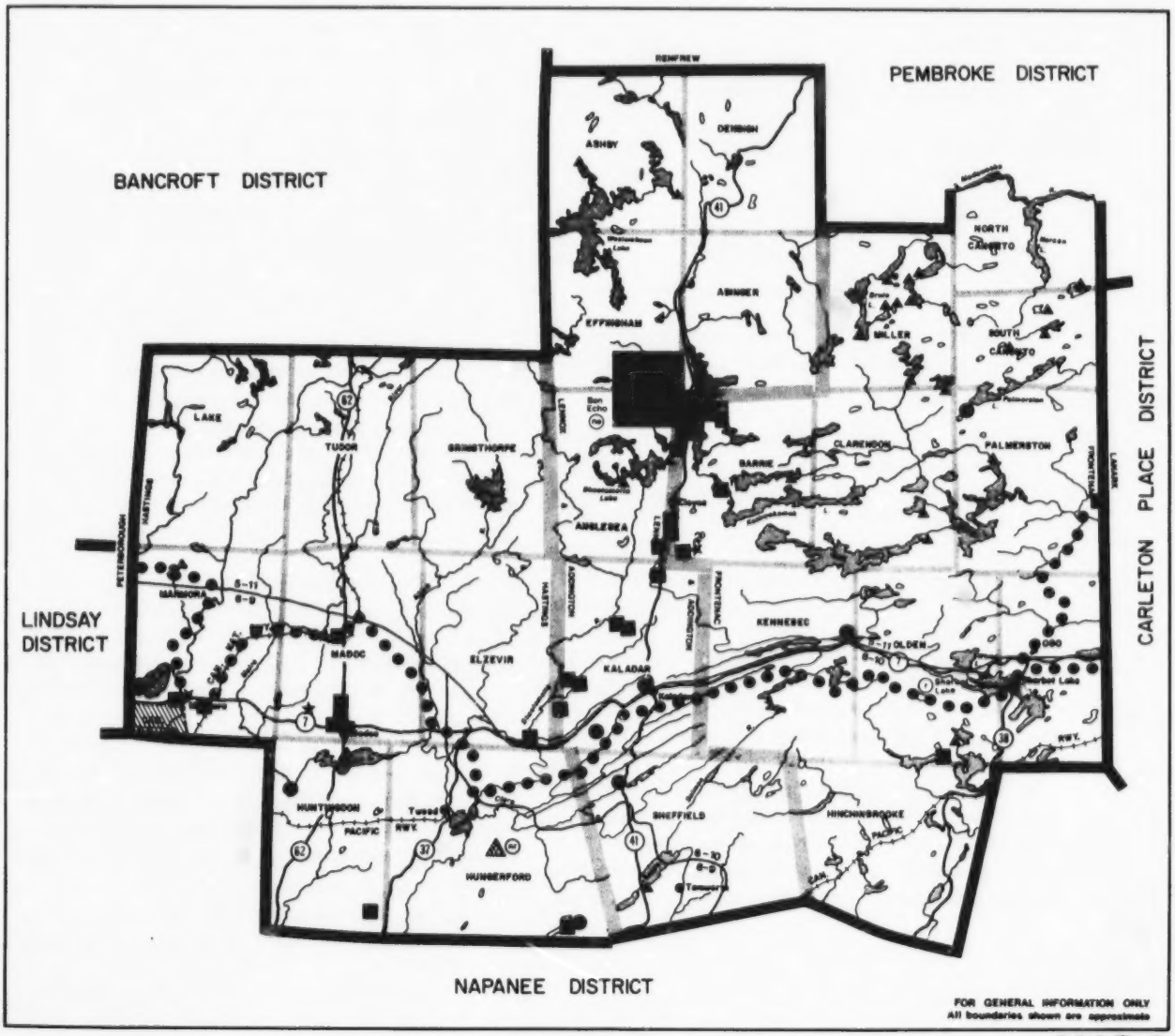
Area of Natural and Scientific Interest

- Earth science
- Life science
- Historical/ cultural

Site of Special Significance

1 Marble Lake Stromatolites
2 Ore Chimney Mine Property

- Major trail
- Access point (MNR)
- Site region/ site district boundary
- Canada-Ontario Rideau, Trent-Severn Corridor



MAP 6

G: general recreation

1. OBJECTIVES

The ministry's recreation management efforts are directed primarily to hunting, fishing and provincial parks. There are a number of other recreation related activities of the ministry for which no objectives have been developed.

Tentative objectives for general recreation in southern Ontario are:

- to provide and encourage the provision of a wide variety of recreation opportunities ranging from day use to back-country experiences;
- to identify, select and protect provincially significant natural and cultural resources; and
- to provide an economic contribution through tourism.

2. TARGETS

No targets have been assigned in Tweed District.

3. DISCUSSION

The lakes and rivers in Tweed District are important recreation and tourism resources which contribute to the local economy. It is part of the ministry's objective to provide on Crown land and encourage on private land a continuous contribution to the economy from tourism and its related industries.

The ministry directly contributes to the achievement of general recreation objectives by providing trails and other recreation facilities on Crown lands. Conservation authorities also contribute to the achievement of these objectives by developing recreational facilities, and protecting significant natural and cultural resources. Both the ministry and conservation authorities are often assisted by funding from the Nature Conservancy of Canada and Ducks Unlimited (Canada). Map 6 depicts recreation resources within the Tweed District.

The amount of recreational use of Crown lands or agreement forests is not known. The Tweed District presently maintains 125 kilometres (78 miles) of canoe routes and thirty-two water access points on Crown lands outside provincial parks.

The ministry often identifies or is made aware of by other agencies or individuals, sites of local natural and cultural significance. While these sites may not be critical to specific ministry programs, it is recognized that they may be highly valued by local citizens and organizations and may contribute to the quality of life in the community. The Tweed District maintains an information file on these special areas to which it refers during the planning and development of ministry programs which might adversely affect the significant features of such sites. This information is available upon request to landowners and other concerned individuals and groups as well as to agencies such as Ontario Hydro, pipeline companies, local governments and consulting firms. Such individuals and groups are encouraged to conserve and protect these features. The identification and documentation of these sites is an ongoing process.

According to market analysis, the private sector is adequately satisfying demand for cottage lots located within the district. However, if demand exceeds the private supply, the district will initiate a lake development planning program whereby the feasibility of individual lakes to sustain additional cottage lot development will be determined and Crown land suitable for cottaging will be identified. Once these plans have been approved, suitable sites may be sold for cottage lot development.

4. STRATEGY

- retain existing public water access points and classify each as either car-top or boat-launch access points;
- develop new public access points if a need for them can be clearly demonstrated and if funds for their construction and maintenance become available;
- make Crown land available to municipalities for the purpose of developing and maintaining public access points;
- continue to maintain the existing portages and campsites on the upper Mississippi canoe route;
- assist groups and agencies through the granting of permission to develop recreational trails on appropriate public lands;
- maintain contact with local trail clubs, and provide advice on the development of facilities by these and other suppliers of general recreation;
- promote the local tourism industry through increased liaison and co-operation with the Ministry of Tourism and Recreation;
- support private sector tourism initiatives proposed for public lands which are compatible with ministry programs, priorities and objectives;
- encourage the development of a comprehensive outdoor recreation policy that integrates the various program elements of all agencies; and
- continue to identify and document locally and regionally significant natural and cultural sites and encourage their protection through considering them when planning ministry programs and through making information about them available to landowners, municipal governments and other concerned individuals and groups.

H: land administration

1. OBJECTIVE

The objective for land administration in southern Ontario is to facilitate the orderly development and conservation of Ontario's land and water resources.

2. TARGETS

Specific land administration targets have not been developed for the Tweed District. To a very great extent, this administrative activity operates to serve other Ministry of Natural Resource programs and the needs of other agencies.

3. DISCUSSION

The ministry has a custodianship responsibility for Crown land. This is carried out by asserting the Crown's proprietary interest concerning illegal occupation of Crown land, by maintaining up-to-date records of land grants, by authorizing appropriate uses of Crown land through licences, leases and permits, and by clarifying land claims based upon evidence of long-time occupancy and those by native people.

The orderly development of lands and waters will be assisted by a geographical referencing system which will include standards, Ontario Basic Maps and surveys.

For many years Crown lots were made available for cottage development. The program ceased throughout southern Ontario in 1970. However, the private sector has continued to provide cottaging opportunities in the Tweed District. The ministry's approach to cottaging in the district is identified in the General Recreation section.

Access roads will be developed and maintained on public land to stimulate development and use of Ontario's natural resources, taking into account tourism requirements for isolation, the needs of the mining and forest industries, out-

door recreation opportunities for the residents of Ontario and other general public, commercial and industrial transportation uses.

Access roads are essential for resource management and extraction. To meet resource production targets, new access roads must be developed on public lands in areas which are remote or which are presently poorly served by roads. Restrictions on location, construction and maintenance of such access roads and on their use by the public may be necessary to provide remote recreation and tourism or to protect specific resources from overuse.

4. STRATEGY

- maintain the Crown's proprietary interest in land;
- administer and manage public lands and waters to contribute to the achievement of ministry and other government objectives. This may require, from time to time, acquisition, interim property management, disposition and regulation of unauthorized occupations;
- dispose of Crown land considering the availability of suitable private land, the potential competition with the sale of private land, and the potential impact on adjacent use and the policies and designations of land use in municipal official plans where they exist; and
- construct and maintain access roads on public lands guided by the following provincial standards:
  - access roads will be developed and maintained consistent with approved ministry land use plans, resource management plans and operating guidelines. To ensure overall co-ordination, multi-year plans for road access will be prepared for the province, the region and the district,
  - access road plans will be developed on a long-term basis and will be subject to public consultation,
  - plans will take into account the requirement for public access,
  - roads will be classified as permanent or temporary based on intended use,
  - temporary roads will be rendered inoperative when intended uses are fulfilled,
  - access roads may be closed temporarily or seasonally to the public for resource management and/or public safety reasons,
  - location of roads will consider factors such as controlling access to lakes or other areas where appropriate, and
  - all individual access road proposals will be subject to the conditions of the class environmental assessment for access road construction.

The general resource area boundaries of the Tweed District are broadly drawn to reflect both present ministry activities and the capability of the land base to support particular uses.

Each area is described in terms of present use and development, significant features and known problems and issues related to ministry interests. Strategies for each resource area are stated, which should be read in conjunction with the general and specific policies applying across the district.

The resource areas establish the relative importance of ministry programs in different parts of the district and the strategies provide the direction for resource management actions.

All general resource areas, lettered for identification purposes only, are shown on the map in the pocket inside the back cover.

1. AREA A

a. Description

Area A is located in the northern portion of the district and contains 160,000 hectares (400,000 acres) of which 75 percent is Crown land.

Approximately 60 percent of this area is under Order-In-Council Crown timber licences and forestry is the dominant land use. However, provincial park recreation, hunting, fishing, backcountry travel and cottaging also are significant uses.

Special features include:

- Effingham deer winter concentration area (largest Crown land deer winter concentration area in the district)
- significant deer winter concentration areas in Ashby, Denbigh, Miller and North and South Canonto Townships
- four significant waterfowl areas, Dwyers Marsh, Robinson Marsh, Dead Beaver Creek and a marsh in Tudor Township
- approximately 75 percent of the coldwater fisheries in the district
- Fortune-Schooner Lake system which is regionally significant in terms of its scenic values
- Bon Echo Provincial Park, a natural environment park which contains the largest concentration of Indian rock paintings found in Ontario.

Due to the significant number of deer concentration areas and trout lakes and streams and the intensive forest management which occurs in this area, there is potential for conflict between forestry and fish and wildlife programs.

b. General Intent

This area is the most significant wood production area in the district. Ministry of Natural Resources' program emphasis will be Crown land forest management. However, in the important wildlife resource areas identified on map 5 forest activity will be modified, restricted or, if necessary, prohibited.

c. Specific Strategies

- emphasize the Forestry strategies;
- direct forest program activity towards intensive forest management in order to increase the productivity of the Crown land forests;
- establish improved access to forested areas consistent with provincial standards for roads on public lands (see Land Administration section);
- ensure consultation with wildlife staff prior to implementation of cutting and regeneration operations in areas identified as Crown deer winter concentration areas (map 5);
- maintain and enhance coldwater fish habitat through implementation of habitat improvement projects, increased stocking and recommending development restrictions through the plan review process;
- ensure that the scenic quality of the shoreline of the Fortune-Schooner system is maintained;

- carry out winter deer management programs in the townships of Effingham, North Canonto and South Canonto;
- prohibit forestry activities within the four significant waterfowl areas (map 5); and
- implement the recommendations of the *Bon Echo Provincial Park Master Plan.*

2. AREA B

a. Description

Area B is located in the north central portion of the district and contains 190,000 hectares (475,000 acres) of which 30 percent is Crown land.

The primary uses occurring in this area are tourism, cottaging, fishing and hunting with forestry and mineral exploration occurring as secondary uses. The decline of the fisheries in some of the major lakes has had a detrimental effect on the local tourist industry.

This area has the majority of the warmwater fisheries of the Tweed District and large areas of forested Crown land which are essential to the achievement of district targets.

Special features include:
- the Ore Chimney Mine and the Marble Lake Stromatolites which are areas of natural and scientific interest
- bald eagle nesting site on Big Gull Lake
- two significant waterfowl areas, Dead Creek and Mud Lake
- significant wild rice production area in Mud Lake
- significant deer winter concentration areas in Palmerston Township
- high potential mineral development area in Palmerston Township.

Problems and issues include a local concern over uranium exploration and local opposition to the commercial harvest of wild rice in Mud Lake.

b. General Intent

Major emphasis will be given to enhancing outdoor recreation and tourism opportunities throughout Area B. Resource extraction such as forestry and sand and gravel operations will be permitted provided they do not unduly conflict with recreational uses. In areas where mineral resources potential has been identified exploration and development will be a primary concern.

c. Specific Strategies
- emphasize the Fisheries strategies to protect and maintain significant fish habitat;
- enhance cool and warmwater fish habitat through implementation of habitat improvement projects;
- restrict resource extraction, when necessary, in order to maintain recreation values;
- concentrate on private land forestry stand improvement operations;
- prohibit forestry activities within the two significant waterfowl areas (map 5);
- concentrate mineral exploration and development in Kaladar Township and in the south half of Anglesea and Barrie Townships; and
- seek protection of the Ore Chimney Mine and the Marble Lake Stromatolites through agreements with the landowners.

3. AREA C

a. Description

Area C is located in Lake Township and the south half of Tudor Township and contains 17,600 hectares (44,000 acres) of which 25 percent is Crown land. The present uses are primarily forestry, cottaging, fishing and hunting.

This area contains an Order-In-Council licence and the majority of the private forest holdings of Domtar Incorporated. There are many deer winter concentration areas. One of the most significant areas in the district is the Millbridge deer winter concentration area which is predominantly on private land where the ministry cannot directly regulate forest activity or developments.

Area C also contains two lake trout lakes, Dickey and Thanet Lake.

Problems and issues include conflicts between forestry activity, residential developments and management of the Millbridge deer winter concentration area.

b. General Intent

Ministry of Natural Resources' program emphasis will be forest management and deer habitat management. Recreation activity will be recognized as an important secondary use for this area.

c. Specific Strategies
- emphasize the Forestry strategies;
- encourage Domtar Incorporated to continue good forest management on their holdings;

- ensure consultation with wildlife staff prior to the implementation of cutting and regeneration operations in areas identified as Crown deer winter concentration areas;
- investigate with private landowners appropriate arrangements to permit effective management of the Millbridge deer winter concentration area; and
- promote wildlife habitat improvements through agreements under the *Fish and Game Act*.

4. AREA D

a. Description

Area D is located in the Township of Marmora and the north half of Huntingdon Township. It covers 38,400 hectares (96,000 acres) and is almost entirely private land. The primary land uses are agriculture, sand and gravel extraction, hunting, fishing and private land forestry.

The most significant features in Area D are numerous high quality aggregate deposits and eight high potential mineral development areas.

The main problem in this area is the loss of significant aggregate resources to other uses which preclude extraction.

b. General Intent

Ministry program emphasis will be private land forestry, mineral exploration, and administration of sand and gravel extraction.

c. Specific Strategies

- apply the private land wood production strategies and the strategies for Minerals and Mineral Aggregate;
- promote the rehabilitation of pits and quarries for recreation, fish and wildlife habitat and forestry;
- promote an increase in the production and harvest of wood fibre through extension services and agreements with private landowners;
- conduct basic geological mapping in the Township of Marmora and the southern portion of Madoc Township; and
- undertake detailed mapping in the Deloro area to evaluate gold deposits.

5. AREA E

a. Description

Area E bisects the district from Grimsthorpe Township to Hinchinbrooke Township. It covers 144,000 hectares (360,000 acres) of which 37 percent is Crown land.

The primary activities are fur harvesting, mineral exploration, sand and gravel operations, agriculture (in the southern portion) and hunting and fishing.

The special features in this area include Lingham Lake, the most significant bass fishery in the district, and several deer winter concentration areas located in Sheffield and Hinchinbrooke Townships.

Potential for conflict exists between deer management and residential and recreational development.

b. General Intent

The area is critical to the achievement of the commercial fur target. In addition, the ministry will support mineral exploration, and hunting and fishing activities.

c. Specific Strategies

- apply the Wildlife strategies with particular attention to fur-bearers;
- discourage filling and dredging where it will have a detrimental effect on the habitat of fur-bearers;
- promote deer habitat enhancement on *Woodlands Improvement Act* properties located in deer winter concentration areas;
- encourage erosion control on lands classified as protection forest; and
- manage county agreement forests intensively for wood production.

6. AREA F

a. Description

Area F, located in the southwestern section of the district, contains 83,600 hectares (209,000 acres) and is largely privately owned land. It is the prime agricultural area in the district.

Among the special features of the area are Stoco Fen, a candidate nature reserve class provincial park and deer winter concentration areas in Hungerford and Sheffield Townships. Huntingdon and Hungerford Townships contain high quality sand and gravel deposits which are critical to the achievement of the district's aggregate target.

Problems and issues in this area include loss of aggregate resources to non-compatible uses and conflict between existing sand and gravel operations and nearby residential land uses.

b. General Intent

The major ministry concerns will be the identification and protection of sand and gravel resources for local use and private land forestry.

c. Specific Strategies

- apply the strategies for Mineral Aggregate;
- promote the rehabilitation of pits and quarries;
- apply the private land wood production strategies;
- promote deer habitat enhancement on *Woodlands Improvement Act* properties located in deer winter concentration areas; and
- seek protection of the Stoco Fen by placing the Crown owned portion in regulation under the *Provincial Parks Act* as a nature reserve class provincial park and through agreements with the private landowners and the Moira River Conservation Authority.

V APPLICATION

Application of the *Tweed District Land Use Guidelines* will be accomplished through regular programs and activities of the ministry such as:

- input to, and review of, municipal official plans, zoning by-laws, plans of subdivision, consent applications and zoning orders under the *Planning Act*;
- review of specific development proposals by other proponents on both Crown and private land;
- use of specific conditions in permits, licences, leases and easements issued under the authority of provincial legislation (e.g. *Public Lands Act, Lakes and Rivers Improvement Act, Crown Timber Act*);
- liaison and co-operation with other government ministries and agencies such as conservation authorities; and
- education and extension programs with private landowners and municipalities.

All resource management plans must have due regard for the intent of the *Land Use Guidelines*. Audits of district and regional programs will be done to ensure the intent of the document is being met.

This document has no legal status. The control of land use on private land in municipalities is exercised by municipalities or the Minister of Municipal Affairs and Housing under the authority of the *Planning Act*.

The ministry recognizes that private landowners, other government agencies, municipalities, conservation authorities and interest groups are key partners in any effort to achieve effective and integrated resource management. The Ministry of Natural Resources will continue to work with these groups, especially with municipalities, through the ministry's plan input and review program to ensure that resource values are considered in local planning documents.

Private land in organized municipalities constitutes 58 percent of the land base in Tweed District. For these lands it is essential to achieve integration between ministry intentions for land use and the plans of the municipalities.

The *Tweed District Land Use Guidelines* may serve as a source of information for ministry involvement in municipal planning. The ministry will consult with municipal officials and private landowners where the *Land Use Guidelines* indicates the ministry wishes to influence particular land uses on private land in organized municipalities. At this time the needs of other land users will be taken into consideration.

There will be occasions when the ministry feels that certain land uses or proposed developments on private land, while in conformity with municipal planning documents, will have a negative impact on ministry programs or interests. In such situations the ministry will attempt to resolve the situation through discussions with the proponent, the municipality and the Ministry of Municipal Affairs and Housing.

In municipalities containing Crown land there may be situations where municipal planning documents do not permit land uses on Crown land indicated as preferred in the *Land Use Guidelines*. Where this happens, and it appears that a possible land use conflict might arise, the ministry will consider taking further action under the procedures provided for by the *Planning Act*.

Conservation authorities are independent corporate agencies set up jointly, under the *Conservation Authorities Act*, by the local municipalities and the Province of Ontario to develop and implement water related land management programs. The *Act* is administered on behalf of the Province of Ontario by the Ministry of Natural Resources.

Conservation authorities are presently completing watershed plans that will outline the long-term direction of their programs. The primary

program of conservation authorities in flood and erosion control complements the ministry's programs. Other conservation authorities programs, particularly those in forestry, fish, wildlife and recreation supplement the efforts of the ministry. Both agencies are making every effort to reduce duplication and overlap in their planning and ensure that the delivery of resource management programs achieves the greatest possible benefits to the people of Ontario.

In the Tweed District there is a close working relationship with conservation authorities. Contacts occur at the staff level and between senior ministry personnel in the district and executive members of authorities. Conservation authorities are often better able than the ministry to influence some types of land use and natural resource decisions in the municipalities and the private sector.

Co-operation with other agencies in the Tweed District involve private groups such as Ducks Unlimited (Canada) and the provincial ministries of Agriculture and Food, Citizenship and Culture, Energy, Environment, Municipal Affairs and Housing, Tourism and Recreation, and Transportation and Communications. Contacts with other agencies may occur as the need arises.

The need for a co-operative working relationship is particularly important with respect to the recreational resources of the Rideau, Trent-Severn Corridor and the program activities of the provincial ministries of Agriculture and Food and Environment.

The governments of Canada and Ontario have approved a set of policies relating to the planning, development and management of one of Canada's prime recreational resources — the Rideau, Trent-Severn Corridor. The implementation and the attainment of the Canada-Ontario Rideau, Trent-Severn (CORTS) objectives is only possible through the co-operation of all interests in the corridor. The Ministry of Natural Resources is an active member of the CORTS Agreement Board and will be the lead ministry in implementing many of the approved policies. For other policies, it will provide support to agencies having lead responsibility. For the portion of the corridor located in the Tweed District, the *Land Use Guidelines* proposes land use activities which comply with the CORTS policies. The review of other plans and development proposals within the corridor will consider the degree to which they support the approved CORTS policies.

The ministry recognizes the importance of agriculture. On private land, the ministry normally will not encourage or support activities or land uses which result in a long-term loss of the amount of land in agricultural production. The ministry will encourage forestry, recreation and other compatible uses on high capability land presently not in agricultural production. Generally, on public land the ministry will maintain high capability agricultural land, or other sites as identified by the Ministry of Agriculture and Food, in uses which do not preclude the long-term use of these lands for agriculture should agricultural use become necessary or desirable.

The Ministry of Natural Resources will work closely with the Ministry of the Environment in meeting the requirements of the *Environmental Assessment Act* and in monitoring impacts on the environment related to natural resources. The two ministries have jointly developed guidelines related to water quality and fisheries issues. The Ministry of Natural Resources has responsibility for identifying the fisheries values of a waterbody with respect to meeting Ontario's fisheries mandate. This identification is based on the *Land Use Guidelines* and, as developed, local fisheries management plans. The Ministry of the Environment is responsible for determining existing water quality and predicting the effects of proposed development on water quality. The latter information is used by the two ministries to assess potential effects on fisheries values.

APPENDIX

A: highlights of public consultation

Public consultation in the preparation of the *Tweed District Land Use Guidelines* began with the distribution of a *Background Information* report in the summer of 1980 followed by open houses in Tweed and Cloyne in January 1981 which attracted some 160 people. At that time the public was asked to comment on the accuracy of the ministry's information and to provide any additional knowledge they had of the planning area and raise any problems or issues they felt should be addressed during the process.

The district public participation effort was directed towards those groups and individuals with an interest or concern for the long-term use of natural resources such as government agencies, municipalities, conservation authorities, special interest groups, local primary industries, the tourism sector and private individuals.

In July 1982 a draft *Tweed District Land Use Strategy* was released and in August additional open houses were held to explain the direction proposed and to invite public comment. About 250 people attended open houses held in Madoc, Denbigh, Sharbot Lake, Flinton and Plevna. A total of 450 copies of the draft document have been distributed. In addition to receiving many verbal and nearly 100 written comments as a result of the open houses, the ministry held follow-up meetings with municipalities and interest groups at their request.

Based on the analysis and evaluation of all the public input received this document was prepared. The Minister personally reviewed the district summary and analysis of public comment and discussed the proposed *Land Use Guidelines* with the District Manager. In addition, the Minister held a series of public forums across the province to hear first-hand the views of interested groups and individuals.

Table 1 indicates the kind and number of contacts which have been made during the public consultation process. Table 2 summarizes the type and number of responses by category of respondents. The information in these tables is complete to November 1, 1982.

Copies of all comments received are available for viewing in the Tweed District office, in the ministry's main office public reading room and in the Legislative Library at Queen's Park, Toronto.

TABLE 1 SUMMARY OF CONTACTS

Background Information Open Houses	2
Total Background Open House Attendance	160
Draft Strategy Open Houses	5
Total Draft Strategy Open House Attendance	250
Comment Sheets Distributed	100
Draft Land Use Strategies Distributed	450
Telephone Calls Received	50
Speeches Made	nil
Meetings with Municipalities	17
Meetings with Conservation Authorities	6
Meetings with Other Agencies	nil
Meetings with Interest Groups	1
Interviews with Media	6

TABLE 2 SUMMARY OF RESPONSES

Response Documentation / Category of Respondent	Individual	Conservation Authority	Government Agency	M.P.P.	Municipality	Interest Group	Industry	Category Unknown	Total All Categories
Background Open House Comment Sheet	12	3	2		3		1	1	22
Background Open House Record of conversation					11				11
Draft Strategy Open House Comment Sheet									
Draft Strategy Open House Record of Conversation					17		3	1	21
Mailed Coment Sheet	6								6
Letter/Brief	10	2	2		6	7	5		32
Record of Conversation		6				1			7
Total	28	11	4		37	8	9	2	99

Candidate Park
An area designated in Ministry of Natural Resources land use guidelines which may be given official status as a park at some time in the future.

Capability
The natural ability of an area to provide continuous opportunity for benefits under an assumed level of management.

Capacity
The upper limit to which an area of land or water may be used or developed without an undesirable change taking place in the environment. Also called carrying capacity.

Crown Land
All land (including land under water) held by the province, both land which has never been sold and land which has been reacquired.

Geological Environment
A discrete period of time characterized by distinctive geological and geomorphological processes, climatic conditions and plant and animal life or its absence which is represented by identifiable features on or below the earth's surface.

Goal
A general purpose to which the ministry aspires.

Historical Theme
A common activity or procedure involving a substantial portion of the contemporary population within a defined time span and geographic area.

Integrated Resource Management
The co-ordination of resource management programs to ensure that conflicts are minimized and that management which would benefit several programs is encouraged. Integrated management encourages multiple use, but recognizes that in some circumstances management of areas for a single purpose may be necessary.

Land Use Guidelines
A document which displays direction concerning the use of land and water in a defined area. It identifies where and how the ministry intends to achieve its objectives in a specific district through the use of Crown land and through influencing the use of private land.

Land Use Planning
A process which culminates in a direction regarding the use of land.

Management
The judicious use of means to achieve ends. Management may have various levels of intensity.

Multiple Use
A resource management or planning concept applied to very large areas to indicate that all basic uses are accommodated. Typically, two or more uses may occur on the same general area at the same time or in sequence.

Objective
A quantifiable end result to be achieved.

Occasion
A measure of recreational use describing the number of times a recreation resource or facility is used by individuals in a given time period. An occasion is considered not to exceed one day in duration.

Operational Plan
A part of a resource management plan stating the extent (includes human and financial resources) of all work of any nature to be carried out during one or more years of the management period.

Opportunity
A measure of recreation supply describing the number of times a recreation resource or facility can be used (occasions of use) in a given time period. An opportunity is considered not to be greater than one day.

Policy
A decision concerning the objectives to be achieved and the means of achieving them.

Program
An activity undertaken by the ministry to provide a service or manage a particular resource.

Public Land
Any land owned or administered by a public body or agency. It includes federal, provincial and municipally-owned lands and lands held by agencies such as parks commissions and conservation authorities.

Resource
Any commodity that meets a need.

Resource Management
The control and co-ordination of the use of resources to achieve specific ends. Commonly applied in particular to natural resources.

Resource Management Plan
A plan by which the policies, objectives and targets usually of an individual program (except in the case of an integrated resource management plan) are implemented for a specific resource.

Sequential Use
Where one use is followed by another in planned sequence.

Site District
A fairly large subdivision of a site region set apart from other areas because of a characteristic pattern of landform features.

Site Region
An area of land within which the response of vegetation to the features of landforms follows a consistent pattern.

Site Type
A lower order subdivision of a site region based on the interaction of microclimate, substrate and moisture regime. A characteristic association of plant species will develop on an individual site type within a specific site region. The number of site types also varies from site region to site region.

Strategy
Planned actions or measures to achieve a desired end.

Target
A quantified end to be achieved or completed by a specific date.

Work Plan
A plan prepared annually which defines what management activities are to be undertaken for that year.

TWEED DISTRICT

1983

GENERAL RESOURCE AREAS

LEGEND

Area reference letter

Area boundary

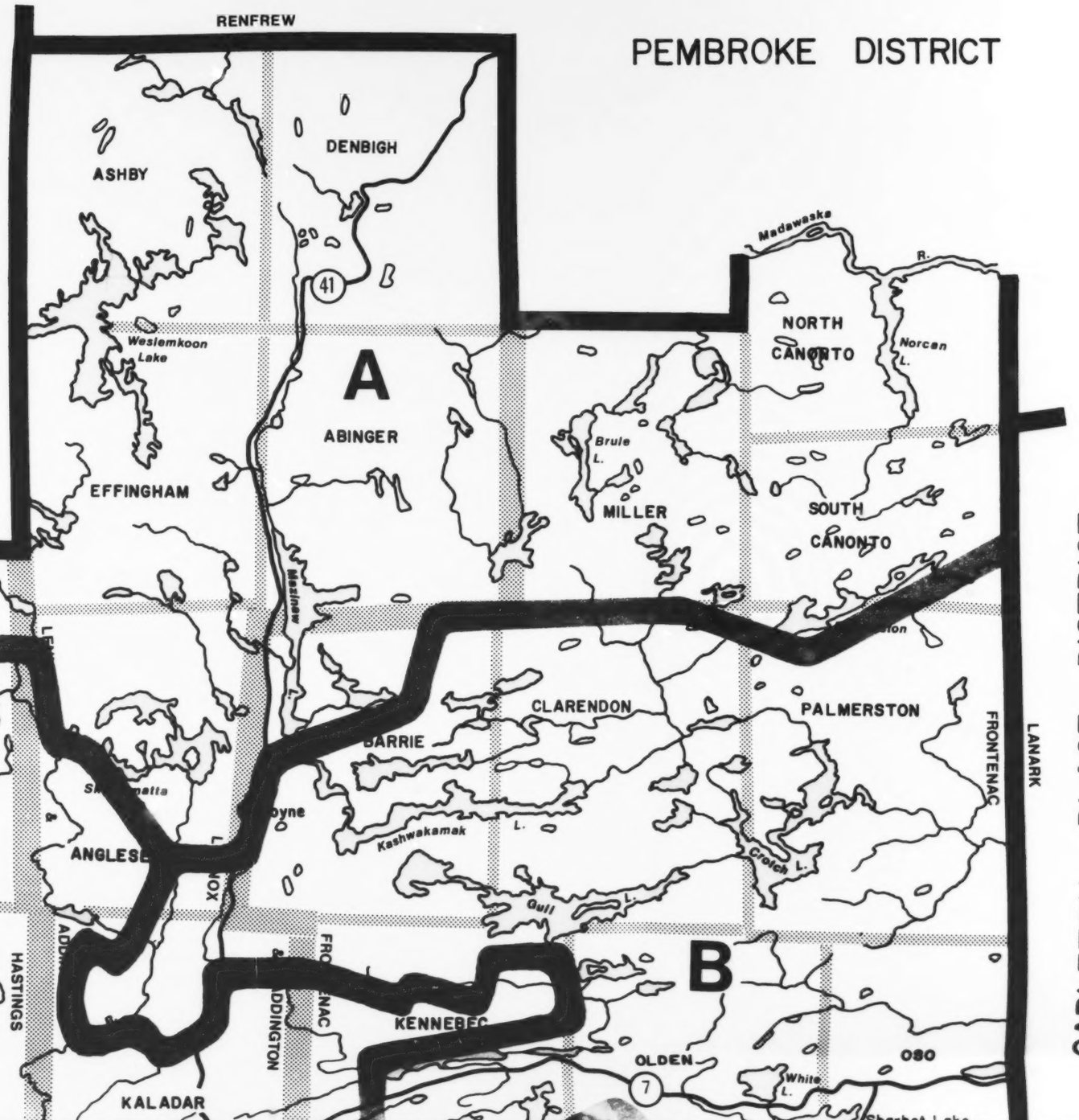
Canada - Ontario Rideau , Trent - Severn Corridor

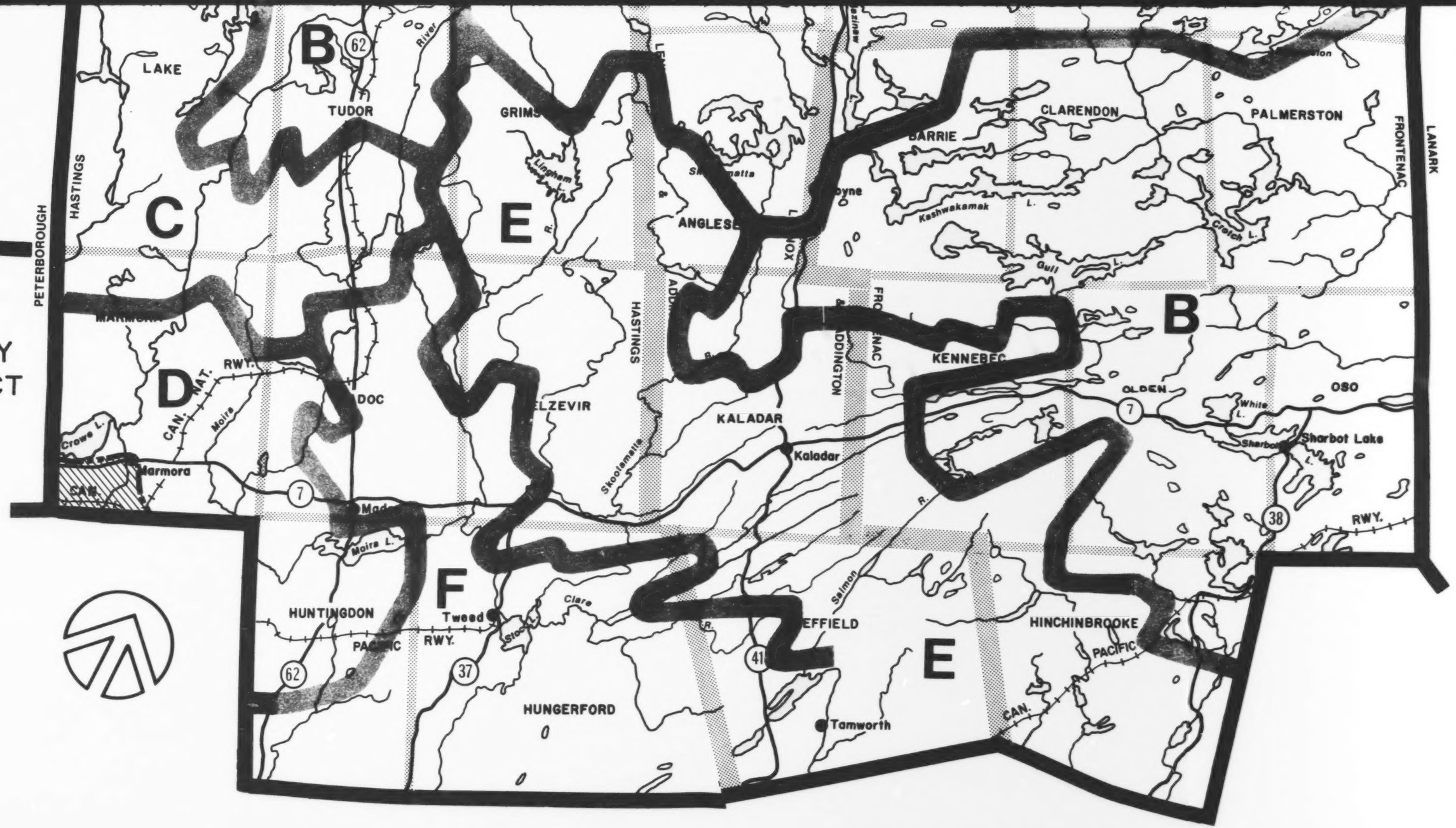
BANCROFT DISTRICT

PEMBROKE DISTRICT

LINDSAY DISTRICT

CARLETON PLACE DISTRICT





NAPANEE DISTRICT

Ontario

Kilometres 0 5 10 15 20 25

Miles 0 4 8 12 16

FOR GENERAL INFORMATION ONLY
All boundaries shown are approximate